State of California
THE RESOURCES AGENCY OF CALIFORNIA
Department of Water Resources
Northern Branch

WATERMASTER SERVICE IN NORTHERN CALIFORNIA
1962 SEASON

OFFICE REPORT

November 1963

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STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

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PART I - GENERAL INFORMATION

Introduction

The distribution of water in watermaster service areas is a continuing statutory function of the Department of Water Resources as provided in Part 4, Division 2 of the Water Code. The major purpose of the program is to provide for the equitable distribution of the waters of the State where the rights to these waters have been defined, either by court decree or by voluntary agreement, in a manner that will prevent expensive and unnecessary litigation.

The first watermaster service areas were created in September 1929 with the most recent addition being made in April 1959. Prior to 1929, watermaster service was provided in accordance with the Water Commission Act of 1914.

Table 1 presents the watermaster service areas with the corresponding decrees under which those areas are operated.

There are 16 watermaster service areas in Northern California. Fourteen of these service areas, located within the Northern Branch boundaries, were administered by nine watermasters, and the remaining two, located in the Delta Branch, were administered by two watermasters. Plate 1 shows the name and location of each of the service areas.

Watermasters are charged with the responsibility of assuring the equitable distribution of the water within their service area. To accomplish this, it is necessary for the watermaster to determine the water available for distribution and how this water will be distributed to best serve the needs of the water users and yet stay within the provisions and limitations of the court decrees or voluntary agreements

defining the water rights. For this purpose it is necessary to design and supervise the construction of diversion dams, headgates, and measuring devices to accomplish proper distribution of the water.

The service areas covered by this report are located primarily in the mountainous, northeastern part of the State. The growing season is about 100 to 140 days with meadow hay and pasture being the principal crops. Most of the irrigation is accomplished by gravity systems, with each water user diverting directly from the streams at one or more diversion points. Each watermaster supervised about 200 to 300 diversions in one or more service areas and, due to the number of diversions involved, does not visit the points of diversion except when there is a specific need.

The need for visiting many of these points of diversion is increased substantially in years of short supply. In some of the areas it is necessary to predict the water supply in advance to determine the date service will start and, to some extent, the manpower needed. The department's water conditions reports are used to a large extent for this purpose.

Water Supply

The water supply in the watermaster service areas is derived primarily from the unregulated runoff of small streams. This runoff occurs mostly from snowmelt in the spring with relatively small flow available in the summer and early fall. Supplemental supplies from stored water or ground water are used in some areas but are not regulated by the watermaster in most cases.

Precipitation

The water available for distribution from the various streams is affected by total precipitation, snowpack, temperature, and the amount of

TABLE 1

SUPERIOR COURT DECREES REGULATING WATER DISTRIBUTION
AND DATES WATERMASTER SERVICE AREAS CREATED

Watermaster service area	Name of stream system	County	Decree Number	Date watermaster service area created	Remarks
Ash Creek	Ash Creek	Modoc* and Lassen	3670	4-3-59	Included as part of Big Valley service area 1949 through 1958.
Big Valley	Pit River	Modoc* and Lassen	6395	11-13-34	Service provided in accordance with recorded agreement in 1934. Service area operated under recorded agreement 1935 through 1958, and under decree since 1959.
Burney Creek	Burney Creek	Shasta	5111	9-11-29	Service provided in accordance with decree since 1926.
Butte Creek	Butte Creek	Butte	18917	1-7-43	
Cow Creek	North Cow Creek	Shasta	5804	10-17-32	
	Oak Run Creek	Shasta	5701	10-17-32	Included in Cow Creek service area 1-21-38.
	Clover Creek	Shasta	6904	1-21-38	
Hat Creek	Hat Creek	Shasta	5724 7858	9-11-29	Service provided in accordance with decree since 1924.
Indian Creek	Indian Creek	Plumas	4185	2-19-51	
Middle Fork Feather River	Middle Fork Feather River	Plumas* and Sierra	3095	3-29-40	
North Fork Cottonwood Creek	North Fork Cottonwood Creek	Shasta	5479	9-11-29	Service provided intermittently in accordance with the decree since 1924.

TABLE 1 (CONTINUED)

SUPERIOR COURT DECREES REGULATING WATER DISTRIBUTION
AND DATES WATERMASTER SERVICE AREAS CREATED (CONTINUED)

Watermaster service area	Name of stream system	County	Decree Number	Date watermaster service area created	Remarks
North Fork Pit River	North Fork Pit River and all tributaries except Franklin Creek	Modoc	4074	12-18-39	These stream systems consolidated into North Fork Pit River service area 12-13-40.
	New Pine Creek	Modoc	2821	6-22-32	
	Cottonwood Creek	Modoc	2344	12-13-40	
	Davis Creek	Modoc	2783	7-13-32	
	Franklin Creek	Modoc	3118	12-14-33	
Seiad Creek	Seiad Creek	Siskiyou	13774	11-6-50	Service provided in accordance with decree by order of the court in 1950.
Shackleford Creek	Shackleford Creek	Siskiyou	13775	11-6-50	Service provided in accordance with decree by order of the court in 1950.
Shasta River	Shasta River	Siskiyou	7035	3-1-33	
South Fork Pit River	South Fork Pit River	Modoc* and Lassen	3273	12-31-34	
	Pine Creek	Modoc	Agreement	1-12-35	
Surprise Valley	Cedar Creek	Modoc	1206 2343	9-11-29	Service started in accordance with the decree in 1926.
	Soldier Creek	Modoc	2405	9-11-29	Service was provided on Soldier and Owl Creeks in accordance with the decrees by order of the court in 1929.
	Owl Creek	Modoc	2401	9-11-29	

TABLE 1 (CONTINUED)

SUPERIOR COURT DECREES REGULATING WATER DISTRIBUTION
AND DATES WATERMASTER SERVICE AREAS CREATED (CONTINUED)

Watermaster service area	Name of stream system	County	Decree Number	Date watermaster service area created	Remarks
Surprise Valley (Continued)	Emerson Creek	Modoc	2840	4-2-30	All stream systems in Surprise Valley except Bidwell Creek were consolidated into the Surprise Valley service area on 1-10-39.
	Mill Creek	Modoc	3024	12-30-31	
	Deep Creek	Modoc	3101	12-29-34	
	Pine Creek	Modoc	3391	1-13-37	
	Rader Creek	Modoc	3626	6-12-37	
	Eagle Creek	Modoc	3284	1-10-39	
	Bidwell Creek	Modoc	6420	3-16-60	
Susan River	Susan River	Lassen	4573	11-10-41	
	Baxter Creek	Lassen	8174	2-16-56	
	Parker Creek	Lassen	8175	2-16-56	

* Decree entered by the superior court of this county.

precipitation which occurs during the irrigation season. The precipitation during the irrigation season is particularly important in the upper Pit River, Surprise Valley area where the average amount during April, May, and June is about 25 to 30 percent of the season total. The spring storms, which are normally accompanied by cooler temperatures, affect not only the supply, but also the demand for water. The temperature in the spring affects the demand for water and manner in which the snowmelt run-off occurs. A hot, dry spring depletes the water supply very early even in cases where there is a normal snowpack; while a cold, wet spring can extend the supply well into the irrigation season. Cold spring temperatures, however, retard the growth of the crops and are not particularly desirable.

Data collected at representative snow courses showing the snow-pack as of April 1, 1962, are presented in Table 2. This information was obtained from the department's report entitled, "Water Conditions in California, April 1, 1962."

Table 3 presents data on the precipitation at selected stations throughout the areas. The seasonal totals indicate the total water supply and form a basis for comparison as to the average.

Streamflow

The watermaster determines the amount of water available for distribution from the various streams within his area primarily by the use of stream gaging stations. The watermaster has three sources from which he obtains this information:

(1) U. S. Geological Survey

(2) Department of Water Resources Surface Water Measurement Units.

(3) Stations which are maintained by the watermaster primarily for aid in distributing the waters.

TABLE 2

SNOWPACK AS OF APRIL 1, 1962, AT REPRESENTATIVE SNOW COURSES

Watermaster service area	Snow course	Elevation, in feet	April 1 water content of snow, in inches		1962 water content, in percent mean
			30-year computed mean (1930-1959)	1962	
Shasta River	Mount Shasta	7,900	49.4	60.1	122
Shackleford Creek	Parks Creek	6,700	34.1	42.6	125
Seiad Creek	Middle Boulder No. 1	6,600	32.9	38.5	117
	Little Shasta	6,200	21.4	24.3	114
Surprise Valley	Blue Lake Ranch	7,300	11.3	13.6	120
North Fork Pit River	Eagle Peak	7,200	16.2	17.2	106
South Fork Pit River	Cedar Pass	7,100	17.0	18.2	107
Ash Creek	Adin Mountain	6,350	14.0	17.7	126
Big Valley					
Hat Creek	Thousand Lakes	6,500	38.0	41.4	109
Burney Creek	Manzanita Lake (new)	5,900	6.7	17.2	258
Cow Creek	Burney Springs	4,800	3.1	1.7	55
North Fork Cottonwood Creek					
Butte Creek	Humbug Summit	4,830	12.4	23.4	189
Susan River	Silver Lake Meadows	6,450	27.7	37.0	134
	Fredonier Pass No. 1	5,600	9.7	16.2	167
Middle Fork Feather River	Independence Lake	8,450	41.1	45.4	110
Indian Creek	Mount Deyer No. 1	7,080	24.2	35.8	148
	Rowland Creek	6,850	18.1	24.1	133
	Yuba Pass	6,700	31.8	41.9	132

TABLE 3
PRECIPITATION AT SELECTED STATIONS
1961-62 SEASON

Station name	County	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Total	Percent of mean
Bieber	Lassen	1.18	1.32	2.63	1.76	2.50	2.24	0.98	2.36	0.03	T	0.03	0.37	15.40	
		1.31	1.90	2.33	2.52	2.21	1.92	1.38	1.37	0.90	0.22	0.15	0.58	16.79	92
Hat Cr. P.H. #1	Shasta	0.85	2.04	2.86	0.75	4.12	1.99	0.27	1.89	0.02	0.00	0.03	0.06	14.88	
		1.07	1.94	2.76	3.21	2.96	2.18	1.34	1.11	0.68	0.16	0.15	0.43	17.99	83
Chico	Butte	0.26	3.55	4.12	1.29	8.34	2.76	0.62	0.38	0.34	0.00	0.04	0.05	21.75	
		1.20	2.62	4.96	5.02	4.38	3.29	1.91	1.03	0.44	0.02	0.05	0.40	25.32	86
Redding	Shasta	0.94	7.13	7.12	2.76	10.69	3.79	0.93	1.76	0.23	0.00	0.70	0.73	36.81	
		1.96	4.07	6.73	7.41	6.30	4.79	2.76	1.63	1.01	0.11	0.10	0.58	37.45	98
Greenville	Plumas	1.37	3.23	3.79	3.49	15.98	4.62	1.00	0.73	0.57	0.41	0.31	1.15	35.65	
		1.82	3.88	5.97	7.05	6.10	5.02	2.56	1.65	0.75	0.15	0.18	0.62	35.75	100
Vinton	Plumas	0.64	1.57	0.32	0.70	5.38	1.96	0.04	1.61	0.61	0.51	0.17	0.61	14.12	
		0.52	1.02	1.88	1.99	1.31	1.14	0.89	0.64	0.83	0.06	0.10	0.25	10.63	133
Alturas	Modoc	0.83	0.70	1.72	1.12	1.27	1.52	0.25	2.51	T	0.03	0.34	0.11	10.40	
		0.96	1.28	1.49	1.62	1.37	1.32	1.02	1.11	0.89	0.34	0.25	0.51	12.16	86
Happy Camp	Siskiyou	5.15	9.52	5.17	2.72	8.78	6.70	1.36	1.28	0.00	0.40	1.40	1.00	43.48	
		3.46	7.46	9.22	9.63	7.27	5.30	3.48	2.09	1.05	0.23	0.17	1.08	50.44	86
Fort Jones	Siskiyou	1.31	3.29	2.29	1.71	2.70	1.56	0.70	1.52	T	0.05	0.75	0.48	16.36	
		1.78	2.88	3.66	3.09	2.83	2.41	1.12	1.24	0.74	0.39	0.29	0.43	20.86	78
Yreka	Siskiyou	1.35	2.77	3.52	1.42	1.39	1.66	0.61	1.14	0.15	0.20	0.88	0.78	15.87	
		1.29	2.38	2.89	2.95	2.15	1.45	1.01	0.98	0.84	0.46	0.35	0.57	17.32	92
Jess Valley	Modoc	1.26	0.51	1.98	1.46	1.37	2.29	1.22	3.91	0.02	T	0.29	0.23	14.54	
		1.20	1.77	1.96	2.21	1.94	1.80	1.45	1.63	1.29	0.29	0.23	0.72	16.49	88
Cedarville	Modoc	0.92	0.64	1.56	1.52	1.39	1.80	0.49	1.30	0.02	T	0.34	0.24	10.22	
		0.99	1.36	1.56	1.84	1.43	1.32	0.97	0.99	0.83	0.22	0.14	0.47	12.12	84
Susanville Airport	Lassen	0.23	1.25	0.80	0.68	6.79	1.15	0.08	0.73	0.01	0.15	0.35	0.02	12.24	
		0.60	1.24	1.81	2.12	1.67	1.33	0.69	0.57	0.40	0.13	0.08	0.32	10.96	113
Sierraville	Sierra	1.38	2.52	0.63	1.58	10.09	3.40	0.77	1.66	0.06	0.38	0.15	0.11	22.73	
		1.36	2.65	3.99	5.00	4.03	3.13	1.57	1.02	0.57	0.29	0.18	0.43	24.22	94
Lakeview, Oregon		1.54	1.20	2.34	1.49	1.79	1.71	0.60	2.59	0.05	T	0.29	0.53	14.13	
		1.14	1.43	1.99	1.73	1.61	1.49	1.17	1.45	1.38	0.18	0.16	0.52	14.25	99

* Figures above line are for current season;
below line are long-term averages.

Data on streamflow at various stations used by the watermasters are shown in Appendix A. These data show the distribution of runoff during the season which is an indication of the adequacy of the water supply at any time and points out the times at which shortages occurred during the season.

The water supply during the 1962 season was affected to a large degree by several of the factors previously mentioned. The water content of the snowpack was somewhat above normal on April 1. The below normal precipitation during April and the first part of May, along with the cold weather, did not produce an average runoff during this period. This cold weather, however, reduced the demand to such a degree that the runoff was sufficient to supply the demand in most areas. An unusually heavy storm in the latter part of May provided a surplus of water in some areas at that late date. This, along with the unmelted snowpack available due to the cold spring temperatures, provided a good runoff during June. The flows during the remainder of the season were generally below normal showing the effect of the previous dry years. Table 4 presents the runoff data at selected stations which are indicative of the overall runoff in the several areas for the 1962 season.

TABLE 4

RUNOFF AT SELECTED STATIONS
(In acre-feet)
1961-62 SEASON

Station	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Total	*Average	Percent Average
Pit River near Canby	1,480	2,310	3,440	2,080	18,370	17,240	14,110	15,180	7,210	1,780	1,380	1,750	86,330	162,200	53
Shasta River near Yreka	9,430	13,070	17,360	13,870	17,760	14,720	5,860	8,190	3,200	1,400	1,930	3,740	110,500	126,700	87
Susan River at Susanville	303	509	770	566	1,470	2,460	16,270	6,850	3,910	5,800	206	184	39,300	68,700	57
Hat Creek near Hat Creek	6,990	6,800	7,350	7,260	6,690	7,370	7,770	9,470	9,560	6,940	6,650	6,200	89,050	94,840	94
Butte Creek near Chico	4,320	5,790	13,620	10,120	58,510	33,910	33,990	25,560	14,290	9,250	7,710	7,010	224,100	280,900	80
Middle Fork Feather River near Clio	822	1,980	4,070	2,760	27,110	28,520	64,500	13,820	4,330	1,130	635	725	150,500	194,000	78
South Fork Pit River near Likely	1,490	1,090	778	1,140	917	681	2,830	7,380	5,100	4,950	6,190	2,140	34,690	51,980	67
Indian Creek near Crescent Mills	1,200	3,350	5,810	5,120	44,920	34,180	134,900	42,060	10,820	1,210	648	670	284,900	382,300	72

*Average annual flow of record through 1961.

PART II - 1962 WATERMASTER SERVICE

Ash Creek Watermaster Service Area

General Description

The Ash Creek service area is located in Modoc and Lassen Counties in the vicinity of the Town of Adin. There are 34 water right owners in the area with total water right allotments of 123.65 cubic feet per second. The major sources of water supply for the service area are Ash Creek and two tributaries, Willow Creek and Rush Creek. Each of these streams is considered independently, in so far as water supply and distribution are concerned. Ash Creek rises in the eastern part of the service area and flows through the Town of Adin in a westerly direction into Ash Creek Swamp and then into the Pit River. Rush Creek rises in the northeast part of the service area and joins Ash Creek above the Town of Adin. Willow Creek rises in the southeast part of the service area and joins Ash Creek near the head of Ash Creek Swamp. The major place of use of the water from this stream system is in Big Valley, west of the Town of Adin, with some use along the upstream tributaries. The portion of Big Valley served by this stream is approximately 10 miles long by 6 miles wide and extends from the Town of Adin to the stream's confluence with the Pit River. The valley floor is at an elevation of approximately 4,200 feet.

Water Supply

The water supply for Ash Creek and Rush Creek is derived primarily from snowmelt with most of the watershed being between the elevations of 5,000 and 6,000 feet, while Willow Creek receives a substantial portion of its water from springs. These three creeks normally have sufficient water to supply demands until about June 1, and then the supply decreases rapidly.

By the latter part of June, Ash Creek normally has receded to about 20 cubic feet per second; Rush Creek to about 2 cubic feet per second; and Willow Creek to about 5 cubic feet per second at the recorder stations. The flow of these creeks then stays nearly constant for the remainder of the season. The mean daily discharge for Ash Creek is presented in Table A-1; Willow Creek in Table A-3; and Rush Creek in Table A-2. The recorder stations on Ash Creek and Rush Creek are below a substantial number of the points of diversion and, consequently, do not record all of the available supply of the creeks.

Method of Distribution

Irrigation on Ash Creek and its tributaries is accomplished by small dams with most of the users having several ditches diverting from the stream. These ditches serve to convey the water to the fields where it is spread by means of small lateral ditches. Some of the users employ a system of checks and borders; however, most of the land is irrigated by wild flooding, the return flow being captured by downstream users for their re-use. In a few cases, pumps are used to divert the water into ditches or through the sprinkler systems.

1962 Distribution

Watermaster service started in the Ash Creek service area about April 15, and continued through October 1. Due to rains in late May, the water supply held up longer than had been anticipated earlier in the year.

Ash Creek. The water supply for Ash Creek was sufficient to satisfy all priorities until about June 10. After June 10, the flow reduced rapidly until about July 1, at which time water was available to satisfy approximately 80 percent of first priority allotments. There was water available for some of the second and third priority users during the

latter part of July and the first part of August when the upper users reduced their diversions for haying.

Willow Creek. Willow Creek provided sufficient water for all priorities until about April 12, at which time water was available for all first and second priority rights. Thereafter, the supply gradually diminished until about July 1, at which time the stream stabilized with water available to supply first priority rights and about 45 percent of second priority rights for the remainder of the season.

Rush Creek. The water supply for Rush Creek was sufficient to supply all demands until about the middle of June. The supply then steadily declined until the first of August when water was available for about 45 percent of allotments.

Marcell Kresge, the last water user on Rush Creek, proposed building dams in the Rush Creek channel to raise the water level. On field inspection, it was found that the proposed dams would not cause injury to any other water user, and therefore it was recommended that he proceed with his plans.

Big Valley Watermaster Service Area

General Description

The Big Valley service area is located in Modoc and Lassen Counties in the vicinity of the Towns of Lookout and Bieber. There are 51 water right owners in the area with total allotments of 231.03 cubic feet per second. The major source of supply for the service area is the Pit River, which enters the valley north of the Town of Lookout and flows through the western part of the valley in a southerly direction through the Town of Bieber and out the southern end of the valley. The major place of use is the valley floor of Big Valley for about 13 miles along the Pit River. The valley floor lies at an elevation of approximately 4,200 feet.

Water Supply

The major source of water is from Pit River, which is subject to extensive upstream use and is effected most noticeably by use in Hot Springs Valley about 20 miles upstream. In a normal year the natural flow is available until about June 1 at which time the irrigation in Hot Springs Valley commences, generally resulting in a drastic decrease in the amount of water available. The irrigation practices of Hot Springs Valley result in stopping most of the flow for some time and then releasing relatively large heads of water from the lower diversion dams about every 15 or 20 days. The natural flow available for use in Big Valley is usually about 15 to 20 cfs for about two weeks, and then the flow may reach a peak of 200 to 300 cfs for short periods. Roberts Reservoir, located at the upper end of the valley above the Town of Lookout, serves as a supplemental source of water to those users of the area who are members of the Big Valley Mutual Water Company. This supply is released into Pit River and distributed to these members

along with their natural flow rights. Table A-4 shows the daily mean discharge of Pit River at Canby. Table A-6 shows the releases from Roberts Reservoir. Plate 2 shows the hydrographs of Pit River near Canby and Roberts Reservoir releases.

Method of Distribution

Most of the users in the Big Valley service area irrigate on a rotation schedule by use of large flashboard dams which are placed in the channel. Some of the users employ checks and borders with a few utilizing pumps for diversion either through sprinkler systems or ditches; however, most of the land is irrigated by wild flooding due to the type of supply. By so doing, they are able to use large heads of water with the return flow being recaptured by subsequent users which results in a higher efficiency for the area as a whole. The flow during the season usually fluctuates from 15 cfs to as high as 300 cfs. During the periods when the flow is inadequate for purposes of wild flooding, the users employing pumps usually irrigate their lands and allow the larger heads of water to pass undisturbed for use by those irrigating by wild flooding.

1962 Distribution

Watermaster service in the Big Valley service area began on April 19 and continued through September. The water supply was somewhat above normal. There was sufficient water to satisfy second priority rights until June 10 at which time the supply decreased as a result of irrigation in Hot Springs Valley. During the rest of the month, an average of about 40 cfs was recorded at the Canby gage. One rotation was accomplished between June 10 and the commencement of haying operations. After haying, about August 1, water was released from Roberts Reservoir

for use by the shareholders of the Big Valley Mutual Water Company according to their interests as shown in the following tabulation.

NAME	SHARES	WATER USED IN ACRE-FEET
Norris & Peter Gerig	5	235
Oral (Sam) Gerig	3	165
Lester Babcock	3	178
L. W. Kramer	2	125
Hunt Estate Co.	2	115
Arad Babcock	1	60
Merlin Kenedy	1	50
Cyril Mamath	1	60
Iest Ranch	1	60
L. H. Monchamp	1	--
TOTAL	20	1,048

There was sufficient water to maintain storage behind the diversion dams and to provide stockwater throughout the season; however, only about 15 percent of the amount required for second priority users was available through August and September. A total of three-tenths of an acre-foot per acre was allotted to those users having second priority rights during August and September.

Failure of the right abutment of Lookout diversion dam prior to the 1962 irrigation season offered no serious problem during the past season; however, repairs to this structure are planned to be made prior to the 1963 season in accordance with the specifications set by the Safety and Supervision of Dams Section.

Plans were prepared and an effort made to install a diversion and measuring device in the Bieber diversion dam at the close of the 1962

season; however, the early storm in October which resulted in flooding of the valley floor prevented the accomplishment of this work. At the first opportunity, this structure, consisting of a pipe, headgate, and Sparling measuring device, will be installed. The purpose of this structure is to facilitate the distribution of water during periods of low flows as well as to assist the watermaster in the measurement of allotments during critical periods. Should this device prove successful, similar structures will be installed in the several river dams.

Burney Creek Watermaster Service Area

General Description

Burney Creek service area is located in Shasta County near the Town of Burney. There are 10 water right owners in the area with total allotments of 33.09 cubic feet per second. The source of supply for this service area is Burney Creek, which enters the southern part of the service area and flows through the Town of Burney in a northerly direction to the Pit River. The portion of the valley served by this stream is approximately 14 miles long by 2 miles in width and extends north and south of the Town of Burney. The valley floor is at an elevation of approximately 3,200 feet.

Water Supply

The water supply for Burney Creek is derived from springs and snowmelt, with most of the watershed being between the elevations of 4,000 and 7,500 feet on the northeast slopes of Clover Mountain and the west slopes of Burney Mountain. The creek normally has sufficient water to supply demands until about the middle of June, and then the supply gradually decreases until the end of July. During the remainder of the irrigation season the flow remains at approximately 40 percent of allotments, being stabilized by the runoff of perennial springs. The mean daily discharge for Burney Creek is presented in Table A-7. The recorder on Burney Creek is below four points of diversion and, consequently, does not record all of the available supply of the creek.

Method of Distribution

The court decree on Burney Creek sets forth a rotation schedule of distribution. The water users have, in past years, found it beneficial to irrigate on a continuous-flow basis, which is now the normal practice.

The water allotted to the Greer-Cornaz Ditch is distributed to the various users on that ditch by the watermaster in accordance with a supplemental court decree. The water is diverted from Burney Creek, in most cases, by means of low diversion dams into ditches which carry the water some distance to the place of use where lateral ditches are used to irrigate the land. Scott Lumber Company diverts their allotment for industrial use by means of a pump and pipeline.

1962 Distribution

The flow of Burney Creek water was again distributed on a continuous flow basis. Water supply available for distribution, determined by addition of all diversions from the creek, was sufficient to fill 100 percent of allotments until the last week in June. A gradual decrease in flow throughout the remaining irrigation season brought the water supply to a low of 40 percent of first priority allotments.

High winter flows in Burney Creek have damaged the headgate on the Greer-Cornaz Ditch, making it difficult to properly regulate this diversion. Deterioration of controls of upper diversions have also caused problems in accurately determining the amount of water available for distribution. Plans have been proposed to alleviate these conditions and construction of some of the necessary structures will commence in the spring of 1963.

Butte Creek Watermaster Service Area

General Description

Butte Creek service area is located in Butte County near the City of Chico. There are 30 water right owners in the area with allotments of 219.71 cubic feet per second. Butte Creek is the source of supply for this service area. The area served by this stream is approximately 20,000 acres, at an elevation of about 150 feet, on the Sacramento Valley floor extending about 11 miles south to the diversion of the Great Western Canal.

Water Supply

Snowmelt from the Butte Creek watershed normally produces a fairly well substantiated flow until the end of June, and the perennial springs at the headwaters produce a minimum summer flow of more than 40 cubic feet per second. Foreign water is transported from the West Branch of Feather River by means of the Hendricks (Toad Town) Canal through the DeSabla Reservoir and powerhouse into Butte Creek. This foreign water is rediverted at Parrott Dam through the Parrott Ditch. The daily mean discharge of Butte Creek is presented in Table A-8. This flow includes the foreign water from Hendricks (Toad Town) Canal, which is presented in Table A-13.

Butte Creek rises on the west slope of the Sierra Nevada Mountains in the northeasterly portion of Butte County between Humbug and Humboldt Passes at an elevation of 5,000 to 6,000 feet.

Method of Distribution

Various methods of distribution are in general practice on the lands served by water from Butte Creek, such as contour checks, strip or border checks, basin checks, furrows, wild flooding, and sprinklers. The

use of sprinklers has increased in popularity within the past few years, especially in the application of water to orchards.

Foreign water diverted by the P.G.&E. from the Feather River through the Hendricks Canal and DeSabla Powerhouse into Butte Creek has, in the past, caused wide fluctuation in the Butte Creek flow. In accordance with "Memorandum and Order," which was entered on May 10, 1949, by the Superior Court of Butte County, water users below Parrott Dam must be provided their natural flow allotments at all times without undue fluctuation caused by intermittent presence of foreign water. This makes it necessary to check the rediversion of this foreign water carefully.

1962 Distribution

During the 1962 irrigation season, P.G.&.E. revised their method of operating the DeSabla Powerhouse by maintaining a constant discharge. From May through July the P.G.&E. releases varied only from 70 cfs to 75 cfs. In August the release was cut to and held at 55 cfs for a short period of time and then increased and held at 60 cfs for the remainder of the month. In September the release was 57 cfs. This method of releases by P.G.&E. has made the effectiveness of rediverting the foreign water together with the natural flow allotment into Parrott Ditch without undue fluctuation of natural flow allotments to water users below the Parrott Dam less critical than in the past. There was sufficient flow in the creek to supply all allotments until the latter part of June, with some water for the lower priorities during the first part of July.

Water stage recorders were maintained in the Butte Creek channel below the Durham Colony diversion dam on Durham Colony Ditch, Dayton Ditch at Edgar Slough, and Parrott Ditch to aid in the distribution of Butte Creek water. These records are presented in Tables A-9, A-10, A-11, and A-12, respectively.

Cow Creek Watermaster Service Area

General Description

The Cow Creek service area is located in Shasta County in the foothills east of Redding. There are 78 water right owners in the area with total water right allotments of 56.355 cubic feet per second. The major sources of supply are North Cow Creek (commonly called Little Cow Creek), Cedar Creek (which is tributary to North Cow), Oak Run Creek, and Clover Creek. These creeks are tributaries of Cow Creek and all flow in a west or southwesterly direction through narrow valleys to Cow Creek near the Town of Palo Cedro. The place of use is in the narrow valleys along the creeks and consists of small parcels separated by brush hills. The entire area is about 25 miles long by 10 miles wide and varies in elevation from about 500 to 2,000 feet.

Water Supply

The water supply for this service area is derived mostly from springs and seepage with some early snowmelt runoff. The watershed consists primarily of low brushy hills which do not accumulate a heavy snowpack. Relatively large amounts of precipitation during the winter normally produce spring flow and seepage throughout the irrigation season.

The flow of Cedar Creek is usually sufficient to supply all allotments until about July 1, after which time the flow steadily decreases throughout the remainder of the season to about 15 percent of allotments.

The flow of North Cow Creek is, in many years, sufficient to supply all allotments. In drier years it is necessary to reduce the allotments in the latter part of the summer.

The flow of Oak Run Creek is augmented by a first priority right of 5 cubic feet per second of foreign water diverted out of the North Cow Creek

watershed. The flow of Oak Run is normally enough to supply all allotments throughout the season.

The flow of Clover Creek is, in most years, sufficient to supply all priority rights throughout the season.

Records of the daily mean discharge of North Cow Creek and Oak Run Creek are presented in Tables A-14 and A-15.

Methods of Distribution

Water in the Cow Creek watermaster service area is for domestic and stockwatering purposes and for the irrigation of meadow hay, alfalfa, small orchards, and vegetable gardens.

The irrigation season normally begins in April or May and ends with the fall rains in September or October. The alfalfa and hay lands are irrigated by the wild flooding method with some sprinkler systems; while the furrow method is used for the irrigation of gardens; and the basin or check method for orchards.

Part of the water applied is lost by percolation, but a considerable portion of it returns to the creeks as seepage water and is thereby usable at lower points of diversion as return flow.

1962 Distribution

Cedar Creek. The flow in Cedar Creek was sufficient to supply all allotments until the first part of July, and then rapidly decreased until only 50 percent of allotments was being filled by the middle of July. During August and September a continued decrease in flow forced the lowest water user, using a sprinkler system, to pump water only intermittently by ponding it behind small dams in the Cedar Creek channel.

North Cow Creek. The water supply was sufficient to fill all allotments on North Cow Creek until July 18. On that date all allotments were cut to 80 percent, and the flow then continued to decrease until a low of 50 percent of allotment was available by the first week in August. An intense but short duration rain storm within the Cow Creek drainage area early in August helped to alleviate the low flow conditions for a short period. At the end of this period the flow had again decreased to 50 percent and continued at this low rate of flow through the remainder of the irrigation season.

Because of the excessive evaporation and transpiration losses throughout the channel of Cow Creek, it is necessary to attempt to forecast a decrease in flow in order to avoid an extended or additional loss of allotment to the lowermost users.

Oak Run Creek. The water supply was sufficient to supply all first priority rights and a surplus right for the entire irrigation season.

The point of diversion of the surplus water right is at the end of the Oak Run Watermaster Service Area. Regulating of all upper diversions was necessary after the first of August to assure continuous delivery of the surplus water allotment.

Clover Creek. There was sufficient water to satisfy all allotments throughout the season. The first regulation was required during the last week in August.

Close regulation of all diversions during the later summer months was necessary to prevent evaporation and transpiration losses from depleting the required allotment to the Millville Ditch, the lowermost diversion point on the stream.

Hat Creek Watermaster Service Area

General Description

Hat Creek service area is located in the eastern part of Shasta County north of Lassen Volcanic National Park. There are 41 water right owners in the area with total allotments of 134.60 cubic feet per second. Hat Creek, which flows in a northerly direction through the area, is the only source of supply in the Hat Creek service area. The place of use is Hat Creek Valley, which is approximately 20 miles long and 2 miles wide from a point about 3 miles south of the Town of Old Station north to the confluence of Rising River with Hat Creek. The irrigable lands, which are made up of volcanic ash, are interlaced with large outcroppings of volcanic rock.

Water Supply

The water supply of Hat Creek is derived from snowmelt from Mount Lassen and from large springs. The snowmelt normally maintains a high flow during May and June, but the major portion of the supply is from the large springs which decrease only a small percent throughout the season. The flow does not necessarily reflect only the precipitation of the preceding winter but also the precipitation for several previous years. Only after a series of dry years does the flow of these springs fall below approximately 75 percent of allotments.

Method of Distribution

The Hat Creek decree divides the water rights on Hat Creek into two groups (upper users and lower users) who rotate in the use of water on a ten-day rotation schedule. This requires a complete reregulation of all diversions every ten days with the regulation of an irrigation supply to one group and a minimum flow to the other group.

Most irrigating in the area is done by flooding with large heads of water to cover the land rapidly and prevent excessive loss from percolation in the extremely porous soil. Diversion dams constructed across the creek raise the water sufficiently to divert it into large diversion ditches. The fields, many of which have checks and borders, are then flooded from the main diversion ditch or from laterals. A few domestic rights are taken by pumping from Hat Creek channel.

1962 Distribution

The distribution of Hat Creek water was continued on a ten-day schedule between upper and lower users beginning May first. Because of low snowmelt, Hat Creek did not have 100 percent of allotments until the last week in May. The flow then remained at 100 percent until June 30, and then gradually decreased until the first week in August when only 67 percent was available to upper users and 60 percent to lower users. These low flows then continued through the remaining irrigation season. The decreased flows made it necessary to maintain close regulation of all diversions, especially during the upper users irrigation period when it is required that a minimum flow for stockwater be distributed to the lower users.

Construction of headgates and measuring devices necessary to maintain proper distribution of allocated water was initiated in the fall of 1961. The work was continued during the spring and fall of 1962; and, at present, 19 steel screw-type gates and four concrete Parshall flumes have been constructed and installed in diversion ditches. Two steel gates are being fabricated and will be installed during the spring of 1963.

Indian Creek Watermaster Service Area

General Description

The Indian Creek service area is located in the north central part of Plumas County in the vicinity of the Town of Greenville. There are 44 water right owners in the service area with total allotments of 97.015 cubic feet per second. The major sources of supply in the service area are Indian Creek and two tributaries, Wolf and Lights Creeks. Indian Creek rises in the mountains southeast of the service area and flows through Gennessee Valley and through Indian Valley by the Towns of Taylorsville and Crescent Mills to its confluence with the North Fork Feather River. It is joined from the north by Lights Creek and Wolf Creek through the Town of Greenville in the northwest part of the valley. The major place of use is in Indian Valley, which is about 4 miles long and $2\frac{1}{2}$ miles wide at an elevation of about 3,500 feet.

Water Supply

The water supply in the Indian Creek service area is derived primarily from snowmelt with springs and seepage maintaining some late summer flows. The flow of Wolf Creek is normally sufficient to supply all allotments until the first of June while Indian and Lights Creeks, with the exception of some tributaries, have sufficient flow to supply all allotments until the first of July. After these dates, the flow steadily decreases throughout the season until only a small proportion of allotments are available by the end of August.

Records of the flow of Indian Creek and Lights Creek are presented in Tables A-17 and A-18.

Method of Distribution

The basic method of irrigation in Indian Valley is wild flooding. Small bulkheads and diversion dams are placed in the stream channels to divert the water into ditches which carry the water to the fields. Small check dams located throughout the fields in swales help to get the water over the ground. There has been a limited amount of land leveling and border check construction in the valley. Also, some sprinklers are used to irrigate a few fields.

1962 Distribution

Watermaster service was started in the Indian Creek service area the first of May and continued until the end of September.

Wolf Creek. The water supply of Wolf Creek was sufficient to supply all demands until the last of May. The flow decreased during the month of June until only 50 percent of the second priority allotments were available at the end of June. During the remainder of the season, the water supply gradually decreased until only first priority water was available during September.

The Herman Pasch and C. G. Fredrickson Ranches rotated the combined water supply available for both ranches after the first of July. The bulkhead used for diversions 69 and 70 developed a leak and was emptied, repaired, and then refilled the last of July.

Lights Creek and Tributaries. The flow of Cooks Creek was sufficient to supply all demands until the first of June. The flow decreased steadily during June until only first priority water was available the first of July. There was no flow at diversion 80 after the middle of July.

Lights Creek had sufficient flow to supply all demands until the last of June. The flow decreased during the first half of July until

irrigation water was available only for the Freeman-Bates and DeFanti-Smith ditches after mid-July. Water was available in the DeFanti-Smith ditch until August 20.

Indian Creek. The water supply of Indian Creek was sufficient to meet all demands until the end of June. The Mill Race Ditch temporary diversion dam was installed late in June. There was considerable leakage through this dam all season. The downstream diversions were supplied by return flows as well as receiving some water from the leakage of the Mill Race Ditch Dam.

Plans have been formulated for the construction of two diversion dams within the service area. The largest one is on Indian Creek at diversion 54. An attempt was made to construct this dam in late 1962 but the construction was stopped by high water during October. A further attempt will be made to build this dam during the fall of 1963. The second diversion dam to be constructed is at diversion 88 on Lights Creek. This dam will probably be built during 1963.

In addition to the aforementioned diversion dam construction, it is expected that several structures will be built along Wolf Creek to measure the exact amount of water diverted at all times. These structures should be built prior to the time when only first priority water is available in 1963.

There were no special problems encountered in the operation of the Indian Creek Watermaster Service Area during 1962.

Middle Fork Feather River Watermaster Service Area

General Description

The Middle Fork Feather River service area is in the plateau area on the west slope of the main divide of the Sierra Nevada Mountains in the east portion of Sierra and Plumas Counties. There are 89 water right owners with total allotments of 370.755 cubic feet per second. The major sources of supply for this service area are the tributaries of the Middle Fork Feather River in Sierra Valley and are divided into five major stream groups. These groups, starting in the north and east corner of the valley and working in a south and westerly direction, are Little Last Chance Creek, Smithneck Creek, Webber Creek and tributaries, West Side Canal, and Fletcher Creek. The Middle Fork Feather River channel follows a general northerly direction for approximately 20 miles through Sierra Valley and then turns and flows in a westerly direction. The major place of use is in Sierra Valley, which is about 15 miles long and 10 miles wide. The average elevation of the valley floor is 4,900 feet.

Water Supply

The water supply in the Middle Fork Feather River service area is derived from snowmelt runoff, the minor flow from springs, and from supplemental stored and foreign water. The flow of Little Last Chance Creek is reregulated and supplemented by stored water by the use of Frenchman Dam which was constructed on the stream by the Department of Water Resources in 1961. This water is now released and used as needed.

The flow of Smithneck Creek is normally sufficient to supply allotments until about the middle of May and then decreases rapidly until the first of June when only first and second priority allotments are available

for the remainder of the season. The natural flow of Webber Creek is normally sufficient to supply allotments until the middle of May at which time foreign water up to 60 cubic feet per second is diverted from the Little Truckee River through the Little Truckee Ditch into Cold Stream and then Webber Creek for shareholders in the Sierra Valley National Water Company. This supplemental supply drops rapidly during July with only small amounts of water available for the latter part of the season.

The West Side Canal Group streams normally supply all allotments until the first part of June with the flow of Fletcher Creek and spring channels normally supplying all allotments until the first of July. The flow of these creeks then gradually declines for the remainder of the season.

Records of the daily mean discharge of Last Chance Creek, Little Truckee Ditch, Middle Fork Feather River near Portola and near Clio, Smithneck Creek, and Miller Creek, are presented in Tables A-19, A-20, A-21, A-22, A-23, and A-24.

Method of Distribution

Wild flooding is the method employed by the majority of the diverters to irrigate their lands. Small diversion dams are placed in the stream channels to divert the water into the individual distribution systems. Once the water reaches the fields, check dams are constructed in the swales to implement flooding.

1962 Distribution

Watermaster service started in the Middle Fork Feather River service area the first of April and continued through September 1962.

Little Last Chance Creek. Frenchman Dam and Reservoir went into its first season of operation this year. Agreements concerning storage and distribution were negotiated with the users in this stream group. The

resulting changes in procedures and specific details of distribution and project operation are covered in a separate report prepared by the Operations Section of the Delta Branch.

Smithneck Creek. The supply was sufficient to meet all demands until May 1, after which the demand increased and the supply decreased. By May 25, water was available for only first and second priority allotments, and by June 30, the entire supply was used to satisfy allotments in first priority.

Webber Creek and Tributaries. The natural flow of Webber Creek was sufficient to supply all demands until May 10, and with the diversion of foreign water from the Little Truckee River commencing May 12, the total supply was sufficient to supply the demands of users having shares in the Sierra Valley Mutual Water Company until June 20. The natural flow supply decreased gradually after May 10, and by July 1, the supply was sufficient for only first and second priority allotments. From August 1, until the end of the season, an average of 50 percent of first priority allotments was available.

Little Truckee Ditch. The Sierra Valley Mutual Water Company imported 7,130 acre-feet of water through the Little Truckee Ditch during the period May 12 through September 30. Water was distributed to shareholders in accordance with Schedule 9 of the Middle Fork Feather River decree.

West Side Canal Group. The West Side Canal Group as defined in Schedule 7 of the decree consists of Hamlin, Miller, and Turner Creeks. The water supply in these streams was sufficient to supply all demands until about June 1, after which regulation was required on all three streams and on the West Side Canal. By July 15, 50 percent of second priority allotments were being served and from that date until the end of the season the

supply in Hamlin and Miller Creeks and the West Side Canal remained fairly stable. The supply in Turner Creek continued to decrease after July 15, and by August 5, only 20 percent of second priority allotments were being served. Stockwater was maintained throughout the entire system during the season.

Fletcher Creek and Spring Channels. Water from these sources was distributed on a continuous flow basis and was adequate to supply all demands until about June 25. The water supply decreased gradually thereafter and by July 20, only first priority allotments were being served. The supply in this stream group reached a low point on about August 10, when about 80 percent of first priority allotments were available.

The October rains and resulting high water caused some damage to individual diversion structures in the Webber Creek and West Side Canal stream groups. In all cases, maintenance and repair is being handled by individual users. One structure requiring group effort for maintenance is the diversion dam on Webber Creek above Sierraville. This structure and channel banks downstream were damaged extensively and federal aid is being requested through appropriate county officials. Failure to make repairs by the spring of 1963 would result in serious distribution problems in this stream group.

During the same high water period some damage was sustained by the Calpine Diversion Dam on Fletcher Creek. State aid for flood damage repair was requested by the Sierra County Waterworks District No. 1 and maintenance forces from the Sacramento Maintenance Yard made repairs sufficient to hold the structure until it is replaced by the district next summer.

North Fork Cottonwood Creek Watermaster Service Area

General Description

The North Fork Cottonwood Creek service area is located in the southwestern part of Shasta County near the Towns of Ono and Gas Point. There are nine water right owners in the area with total allotments of 30.30 cubic feet per second.

North Fork Cottonwood Creek, which is the major source of supply in the area, has its beginning on the east slopes of the foothills of the Coast Range Mountains. It flows in a southeasterly direction to its confluence with Cottonwood Creek near the Town of Gas Point. The area is characterized by high summer temperatures and moderate rainfall. The irrigable land consists of sparcely scattered acreages separated by steep brushy hills and lies at the 1,000-foot elevation.

Water Supply

Snowmelt from the east slope of the Coast Range foothills is available in the North Fork Cottonwood Creek only during the early weeks of the irrigation season and is usually melted before irrigation demands are at a maximum. The springs continue to flow throughout the season, but during the month of July a gradual decrease is noted in the flow and this decrease continues through the remaining irrigation season.

Method of Distribution

The general practice throughout the area, with one exception, is to flood irrigate. The exception is a water user who pumps directly from the creek and uses a sprinkler system to irrigate his crop. Pumping was necessitated at this diversion point because of the greater elevation of the irrigated land in relation to the creek channel.

1962 Distribution

During the 1962 irrigation season, surplus water was available to all users on North Fork Cottonwood Creek through the month of June. Beginning in July, the flow began to gradually decrease, but sufficient water was available to fill all allotments throughout the entire season.

North Fork Pit River Watermaster Service Area

General Description

The North Fork Pit River service area lies along the western slopes of the Warner Mountain Range in the northerly portion of Modoc County. There are 98 water right owners in the area with total water right allotments of 215.065 cubic feet per second. The source of supply for the area consists of a number of small streams rising on the west slope of the Warner Mountains. Three of these streams are tributary to Goose Lake; namely (from north to south), New Pine Creek, Cottonwood Creek, and Davis Creek. Each flows in a general westerly direction from the slopes of the Warner Mountains to the eastern shore of Goose Lake. Six of these streams are tributary to North Fork Pit River; namely, Linville, Franklin, Joseph, Thoms, Parker, Shields, and Gleason Creeks which are tributaries to Parker Creek. All of the tributaries have their sources on the west slope of the Warner Mountains and flow in a general westerly direction to their confluence with the North Fork Pit River. The North Fork Pit River flows in a general southerly course from the south rim of Goose Lake to its confluence with the South Fork Pit River immediately below the Town of Alturas.

The place of use in the North Fork Pit River service area extends from south of the Town of Alturas to the Oregon border. It is about 40-miles long and 10 miles wide. The streams tributary to Goose Lake are not considered as part of the North Fork Pit River watershed as this lake has not spilled into the river for nearly 100 years. The water supply in this part of the area is used along these streams between the mountains and the lake.

The use of water on the North Fork Pit River and its tributaries is somewhat related with most of the use being in narrow valleys near the streams. However, each is dealt with separately for the purposes of distribution.

Water Supply

The streams which serve the area are fed by snowmelt and springs on the Warner Range. A large portion of the runoff occurs early in the spring and drops off rapidly in May and June. The watershed of New Pine Creek, however, is at a higher elevation and maintains a good supply well into the summer. After the snowpack is depleted, perennial springs at the headwaters of the tributaries are the main source of water supply. Linville Creek has a small drainage basin and its flow depends almost entirely on the supply springs at its head.

Gleason Creek, Thoms Creek, and Cottonwood Creek normally dry up in August, except during years of better than average water supply.

Some supplemental water is stored in small reservoirs throughout the area, none of which are operated by the watermaster. However, the inflows to some of these reservoirs are under the jurisdiction of the watermaster.

Methods of Distribution

Watermaster service started on North Fork Pit River on the first of April and continued until the end of September in 1962. Stream gaging stations equipped with water stage recorders were maintained at a number of points in the North Fork Pit River service area during the 1962 season as shown in the following tabulation.

Recorder station	:
New Pine Creek below Schroder's	Rated section
Cottonwood Creek below Larkin Garden Ditch	Rated section
Davis Creek at Old Fish Wheel	Rated section
Linville Creek at Powerhouse	3-foot weir
Franklin Creek above diversions	4-foot weir
Joseph Creek below Couch Creek	Rated section
Thoms Creek at Cedarville-Alturas Highway	Rated section
Parker Creek at Fogarty Ranch	Rated section
Parker Creek above Highway 395	Rated section
Shields Creek below Pepperdine Ranch	6-foot weir
North Fork Pit River below Thoms Creek	Rated section
North Fork Pit River near Alturas	Rated section

The record of the daily mean discharge at these stations is presented in Appendix A.

1962 Distribution

Irrigation is primarily by small scale surface flooding from random field ditches along high spots in the meadows. The water is diverted from the natural stream by various type structures into small earth ditches which convey the water to the meadows. At present there is a limited amount of sprinkler irrigation, some by naturally developed pressure and some by direct pumping from small sumps in the ditches. Subirrigation by the use of large flashboard dams to raise the water level is being practiced on the North Fork Pit River between Parker Creek and the Town of Alturas.

New Pine Creek. The water supply during the 1962 season was about average. There was enough water to supply all rights until July 1 when distribution went on a priority basis. Only the ranchers who completed haying operations late failed to receive irrigation water. Those using sprinkler systems irrigated a second crop. By July 20, only third rights were available and by August 10, only first and second priority remained. First and second priorities, which consist of stockwater, diminished gradually during the remainder of the season.

Cottonwood Creek. The flow of Cottonwood Creek decreased rapidly after the May rains. About June 25, only first priority water was available. On July 28, water no longer reached the Robnett Ditch so all water was cut from that ditch and given to the remaining user. The remainder of the first priority water was sufficient to supply only stock and garden water. On August 25, all the water was diverted in the Larkin Main Ditch, and by mid-September, Cottonwood Creek was dry at the gaging station.

Davis Creek. The flow of Davis Creek was sufficient to supply first, second, and a small portion of third priorities until mid-July. After completion of haying operations, the creek held steady with enough water for some irrigating but was used mostly for stock and garden purposes.

Some progress was made in the planning for a diversion dam and channel improvements. It is hoped that actual construction can be accomplished in 1963.

Linville Creek. At the time the recorder was installed in early May, the flow was sufficient to satisfy only 60 percent of first priority rights. The creek held steady all season with the total flow dropping only a total of 17 percent. Although this was a relatively low supply, it was sufficient to continue irrigation after haying operations.

A new measuring device was constructed this year at the Gardner-Capic property line to help resolve a distribution problem at this point.

Franklin Creek. The flow was sufficient to supply a portion of third priority allotments until the first part of July. Stockwater was all that was available for the rest of the season.

Joseph Creek. The flow in Joseph Creek was sufficient to supply second priority water until June 4. The flow then decreased gradually until mid-August, but stockwater was available. There was enough water to irrigate meadows until haying time.

A new concrete diversion dam and Parshall flume was constructed in November at Diversion No. 24.

Thoms Creek. The flow in Thoms Creek was sufficient to supply all rights until mid-July. Ranchers were able to wet down the meadows after haying, but the water supply slowly diminished until August 20 when the creek went dry at the recorder.

Gleason Creek. The flow in Gleason Creek dropped to stockwater only in early May, but came back after the May rains to fill third priority rights for about one week. There wasn't much demand for third priority water because the land received sufficient water from rain. The flow then decreased until mid-June, when the creek went dry at the gaging station and remained dry for the remainder of the season.

Shields Creek. The flow in Shields Creek was sufficient to supply allotments until the latter part of June and then steadily declined to the end of the season. The Pepperdine Ditch, which diverts water to Plum Canyon Reservoir from Shields Creek, was shut off in mid-July in accordance with the decree. For the remainder of the season, the reservoir collected some runoff from adjoining meadowlands.

Parker Creek. The flow in Parker Creek was sufficient to satisfy all demands until mid-June. The ditch which supplies water to Dorris Reservoir was then cut back as there became a need for more water downstream. The streamflow dropped rapidly, and by mid-July little water other than stockwater remained for the rest of the season.

North Fork Pit River. The flow in the North Fork Pit River above the mouth of Parker Creek dropped steadily after the May rains until July 15. At this time the Lauer Reservoir was opened to about 4.5 cfs. This flow decreased gradually throughout the season until mid-September when the reservoir went dry, and no water was available for diversion.

A new dam was constructed on the North Fork near Alturas for subirrigation purposes near Diversion No. 142 (Hughes) making a total of three such dams between the mouth of Parker Creek and Alturas. After July 4, no water was available to the Lower North Fork users except for subirrigation from the water held by the three dams.

Seiad Creek Watermaster Service Area

General Description

The Seiad Creek service area is located in the northwestern part of Siskiyou County at the Town of Seiad Valley. There are 11 water right owners with total allotments of 6.82 cubic feet per second. Seiad Creek, which is the source of supply for the area, has two tributaries (Canyon Creek and Darky Creek) which join the main stream from the north near the head of Seiad Valley. Seiad Creek traverses the northerly portion of the valley, and the main body of agricultural land lies to the south.

The Seiad Creek service area comprises Seiad Valley and a narrow strip of land extending upstream from the head of the valley for a distance of about 2 miles. Seiad Valley extends from the mouth of the canyon for a distance of about 1 mile to the Klamath River which forms the western boundary of the area.

Gold dredging operations in the past have destroyed about 40 percent of the agricultural area within Seiad Valley. Up to the present time, no effort has been made to reclaim any of the dredged lands for agricultural purposes. The elevation of the valley is about 1,400 feet.

Water Supply

Melting snow from higher elevations provides the main source of water supply to Seiad Valley with flows from springs and seepage providing some water in the summer and fall. The watershed of Seiad Creek stream system embraces the heavily forested, steep, mountainous area on the southern slopes of the Siskiyou range of mountains located in Siskiyou County. It ranges in elevation from 6,700 feet along the crest of the Siskiyou Mountains bordering the basin on the north to about 1,400 feet at the Klamath River on

the south. The stream system drains an area of about 29 square miles of which 17 square miles are tributary to the main stream, 9 square miles to Canyon Creek, and 3 square miles to Darky Creek.

Method of Distribution

Irrigation of the agricultural land in use is by random flooding. Diverted water is used primarily for domestic gardens and lawns. Two of the diversions in use are pump diversions for domestic water. The distribution of the remaining water is by small ditches and laterals to the place of use.

1962 Distribution

Only diversions 2, 3, 7, 8, 8A, 10, and 12 were used during the 1962 season. Full allotments of water were not in demand and excess water flowed into the Klamath River all season. However, had all diversions been used there would not have been sufficient water available to satisfy all allotments.

Shackleford Creek Watermaster Service Area

General Description

The Shackleford Creek service area is located in the westerly portion of Siskiyou County near the Town of Fort Jones in Scott Valley. There are 20 water right owners in the service area with total water right allotments of 63.98 cubic feet per second. The source of supply for this service area is Shackleford Creek located in the central part of Quartz Valley, and its tributary, Mill Creek, which rises east of the headwaters of Shackleford Creek. Evans Creek, a small stream, is tributary to Mill Creek from the south. The service area covers the Quartz Valley region of Scott Valley which embraces the entire agricultural area within the Shackleford Creek basin. It is about 2 miles wide by 6 miles long with the main axis and drainage running from south to north. Elevations on the agricultural area range from about 3,100 feet at the south to about 2,650 feet at the point of confluence with Scott River.

Water Supply

The water supply for Shackleford Creek is derived from snowmelt, springs and seepage, and supplemental stored water released from Cliff and Campbell Lakes located near the headwaters of Shackleford Creek.

The watershed of the Shackleford Creek stream system is about 31 square miles in the heavily forested, steep, mountainous terrain on the northeasterly slopes of the Salmon Mountains. It ranges in elevation from about 7,000 feet along its west rim to about 3,000 feet at the foot of the slopes bordering Quartz Valley.

The snowmelt is normally sufficient to supply all demands until the middle of July. The supply then decreases until the first part of

August when water is released from Cliff and Campbell Lakes to maintain sufficient flow for the second priority rights in the Shackleford Ditch.

Method of Distribution

The primary method of irrigation is by wild flooding of permanent pasture and alfalfa fields. Water is distributed by ditches and laterals to the places of use. The largest of these ditches is Shackleford Ditch which has a length of about 6 miles and a capacity of about 12 cfs.

1962 Distribution

The available water supply in the Lower Shackleford Creek and Mill Creek areas was in excess of demands throughout the season.

The Upper Shackleford Creek area had sufficient water to satisfy first and second priority rights during the entire full irrigation season. Supplemental water was released from Campbell Lake in August to insure the second priority right of its full allotment.

Four water stage recorders are maintained on the primary diversion ditches in the Upper Shackleford Creek area to insure accurate operation of these diversions. The recorders maintained areas shown in the following tabulation.

Water Stage Recorders Maintained in
Shackleford Creek Watermaster Service Area
1962

Location	: Type of control
Ralph Eastlick Ditch	3-foot rectangular weir
Shackleford Ditch	6-foot rectangular weir
Howard Jones Ditch	3-foot rectangular weir
Camp Ditch	3-foot rectangular weir

Records of the flow in these ditches are presented in Tables A-38, A-39, A-40, and A-41.

During the 1962 season the U. S. Indian Land Service rehabilitated and constructed additional ditches and turnout structures on Indian lands served by Camp and Frietas Ditches. This program was completed during the summer prior to the relinguishing of land title to the individual reservation dwellers. This improvement program should increase the beneficial use derived from water delivered to these lands.

Shasta River Watermaster Service Area

General Description

The Shasta River service area is located in the central part of Siskiyou County in the vicinity of the Town of Yreka. There are 103 water right owners in the service area with total allotments of 594.362 cubic feet per second.

The source of supply for this service area is Shasta River and its tributaries. Shasta River enters the south end of Shasta Valley near the Town of Weed. It is joined by several tributaries, including Little Shasta River which joins Shasta River from the east near the Town of Montague. Shasta River then flows out the north end of the valley near the Town of Yreka to its confluence with the Klamath River.

The place of use is in Shasta Valley which is approximately 30 miles long and 30 miles wide. The valley has numerous small, cone-shaped, volcanic hillocks scattered throughout the central portion which have the effect of dividing the area into a number of distinctively separate parts. Of the approximately 507,000 acres within Shasta Valley, about 141,000 are irrigable due to this formation. The valley floor is at an elevation of approximately 3,000 feet.

Water Supply

The water supply for Shasta Valley is partly from snowmelt runoff and partly from spring and underground flow. This spring and underground flow is sufficient to supply nearly full allotments in several portions of the stream system throughout the season. Much of this underground flow apparently has its source on Mount Shasta which rises to an elevation of 14,162 feet at the south end of Shasta Valley. There is only negligible

surface runoff from Mount Shasta; although, there is normally a heavy snowpack.

Parks Creek, Upper Shasta River, and Little Shasta River derive a major portion of their water supply from snowmelt runoff with the flow normally sufficient to supply allotments until the middle of May.

Beaughan Creek, Carrick Creek, Shasta River from Boles Creek to Dwinnell Reservoir, Big Springs, and Lower Shasta River normally have sufficient spring flow to supply a large percentage of the allotments throughout the season. Records of the flow at several gaging stations throughout the area are presented in Tables A-42 through A-53.

Methods of Distribution

Irrigation of permanent pasture and alfalfa lands is accomplished by the wild flooding method. Much of the waste water is recaptured and used on lower pasture lands. The use of sprinkling systems is employed in the irrigation of some alfalfa and grain lands.

The distribution of water in the area is done primarily by direct diversion from streams and then conveyed by ditch or canal to the place of use. The largest and longest canal in the area is the Edson-Foulke Yreka Ditch, which has a capacity of about 60 cfs and a length of about 15 miles. Water is also distributed into ditch systems by pumped diversions. Generally these are the irrigation district pump installations, although many riparian water right users employ pump diversions.

Many privately owned storage reservoirs are found in the area. These are mainly used to supplement water right allotments during the irrigation season from surplus water stored in winter months. Several of these reservoirs are also used for regulatory storage of natural flow allotments.

1962 Distribution

To facilitate an equitable distribution of water and to obtain records of streamflow, 11 water stage recorders were maintained. The locations of the recorders were as follows:

Location	Type of Control
Parks Creek above Edson-Foulke Yreka Ditch	Rated section
Edson-Foulke Yreka Ditch North of Parks Creek	Rated section
Edson-Foulke Yreka Ditch at Shasta River	Rated section
Robertson Weir near Parks Creek	8-foot rectangular weir
Carrick Creek at Highway 97	3-foot rectangular weir
J. N. Taylor Ditch	4-foot rectangular weir
M. L. Miller Ditch	1-foot Parshall flume
K. Waters Ditch	3-foot rectangular weir
Big Springs Lake	Staff
Big Springs I. D. Flume	Rated section
Shasta River at Montague Bridge	Rated section

Parks Creek. During April and May there was a high sustained rate of flow, sufficient to satisfy all priorities. Beginning in June, the flow decreased rapidly until by the middle of June the rate of flow was about one-half the amount of the previous month. The Edson-Foulke Yreka Ditch diverted water until mid-August; however, the flow dropped below 1 cfs the last few weeks. The water users on Lower Parks Creek received a portion of their allotments all season even though the stream channel crossing Highway 99 was dry. This condition is due to the reappearance of water from the gravel streambed and from return irrigation flow. The Montague Water Conservation District's Parks Creek Feeder Canal to the

Shasta River was shut off in the latter part of June to provide sufficient water for downstream allotments of higher priority.

Beaughan Creek. The creek was measured below Beaughan Spring on June 21, at which time the rate of flow was 7.6 cubic feet per second. This amount was sufficient to supply about 91 percent of second priority allotments. The creek is routed through the mill pond owned by International Paper Company. They are entitled to use 35 percent of the flow for industrial purposes. Intermittent observations made at the Parshall flume during 1962 are presented in the following tabulation:

Date	Discharge in second-feet	Date	Discharge in second-feet
May 1	9.1	July 17	5.0
May 15	8.9	July 31	4.7
May 29	9.7	August 31	5.1
June 12	8.0	Sept. 4	5.6
July 3	5.0	Sept. 18	5.9

Carrick Creek. The water supply was sufficient to supply main stream allotments until June 1; thereafter, water was regulated to fifth and sixth priority rights. The ninth priority right received water at frequent intervals throughout the season. The flow of Carrick Springs is determined by adding diversions 116 and 117, and the flow of the creek as measured at the Highway 97 water stage recorder.

Shasta River from Boles Creek to Dwinnell Reservoir. Boles Creek and Shasta River below Boles Creek to Dwinnell Reservoir were operated as one stream, and water was distributed on an equal and correlative basis. All allotments were satisfied until September 4, at which time the flow dropped to 75 percent of decreed rights.

Upper Shasta River. The Edson-Foulke Yreka Ditch diverted the entire flow of Upper Shasta River beginning July 3 and extending through the remainder of the season.

Dwinnell Reservoir. Reservoir releases from Dwinnell Reservoir to the Montague Water Conservation District commenced on April 9, 1962, and continued throughout the irrigation season. Reservoir operation data for the 1962 season are shown in Table A-51.

By agreements with the Montague Water Conservation District, natural flow water rights below Dwinnell Reservoir are met upon demand by the release of stored water to the water right owner in lieu of natural flow rights. The agreement allotment totals and seasonal amounts delivered to each user are shown in the tabulation below.

In some cases, total allotments were not delivered because of the cold wet weather occurring during the first months of the season which reduced the irrigation requirements.

DELIVERIES TO NATURAL FLOW WATER RIGHT OWNERS
BELOW DWINNELL RESERVOIR 1962

Name of water right owner	Allotment per agreement, in acre-feet	Amount delivered from Dwinnell Reservoir	
		Acre-feet	Percent of allotment
Fred Quigley	198	182	92
Marvin Miller and Inez M. Miller	924	897	97
K. K. Waters and Emily S. Waters	464	474	100
John W. Taylor	1,200	1,200	100
W. W. Valentine, Jr.	595	0	0
TOTALS	3,382	2,651	

Big Springs. The Big Springs water supply was more than adequate to meet all water right demands during the 1962 season. Water pumped by the Big Springs Irrigation District is shown on Table A-43.

Lower Shasta River. The streamflow of the Lower Shasta River met all water right requirements without any shortages occurring. This abundant water supply allowed the Shasta River Water Users Association and the Grenada Irrigation District to receive their full allotments for the season. Daily operational data are set forth in Table A-52, Shasta River Water Users Association, and Table A-53, Grenada Irrigation District.

Little Shasta River. Due to the streamflow characteristics of this stream, regulation is required early in the season. Water was available to satisfy 100 percent of the fifth priority rights until May 31 when regulation was necessary to satisfy higher priority rights. A record of the daily mean discharge of Little Shasta River near Montague is presented in Table A-47.

Assistance was given to the water right owners on the Musgrave and Linton Ditch from Little Shasta River to begin a program of rebuilding diversion devices to effect greater efficiency in the use of available water.

South Fork Pit River Watermaster Service Area

General Description

The South Fork Pit River service area is located primarily in Modoc County, with a small portion extending into the northern part of Lassen County. There are 37 water right owners in the area with total allotments of 336.00 cubic feet per second.

The source of water supply for this service area is the South Fork Pit River and its tributaries which rise on the western slopes of the Warner Mountains. The main stream enters South Fork Valley near Likely and then turns north to its confluence with North Fork Pit River at Alturas. South Fork Pit River is joined by Fitzhugh Creek near the middle of the valley and by Pine Creek just south of Alturas.

The major area of water use is in South Fork Valley between the Towns of Likely and Alturas. South Fork Valley is about 16 miles long and 3 miles wide with the valley floor being at an elevation of about 4,500 feet. The valley is bounded on both sides by a rocky plateau which separates it from the surrounding mountains.

Water Supply

The water supply for Pine Creek is derived primarily from snowmelt from relatively high mountains. The runoff is generally small in the early spring. As the weather warms up, the flow increases in May, until July, when the snow is mostly gone and the flow recedes to the base flow at which time the individual users supplement the streamflow from other sources where available.

The water supply for Fitzhugh Creek is from snowmelt early in the season and supplemented by water diverted from Mill Creek above Jess Valley

later in the season. Surplus water from Fitzhugh Creek is normally diverted into the Paine and French Reservoirs through Paine-French Ditch (Diversion 136) until June, when the diversion is closed to supply downstream allotments. By July, the creek has normally receded until only first priority allotments are available.

The Paine Ditch (Diversion 1) is opened to divert water from Mill Creek to Fitzhugh Creek as soon as the snow has melted enough to allow access. This foreign water is rediverted from North Fork Fitzhugh Creek through the Bowman Ditch to the Bowman Ranch. The return flow from the Bowman Ranch to the creek is then rediverted through Diversion 136 for stockwatering purposes in the Paine-French Ditch.

The water supply for South Fork Pit River is primarily from snowmelt from a number of streams which rise at high elevations and collect at the mouth of Jess Valley to form the South Fork proper and from West Valley Reservoir located on West Valley Creek which enters the river below Jess Valley.

Most of the users on South Fork Pit River, except those in Jess Valley, are in the South Fork Irrigation District. This district stores water in West Valley Reservoir, which has a capacity of 22,240 acre-feet, and releases it to the South Fork Pit River as a supplemental supply at such times as the natural flow becomes insufficient to supply demands. It is normally necessary to begin releasing water from the reservoir about the middle of June when the natural flow is no longer sufficient to meet demands. This water is distributed by the watermaster in cooperation with the Board of Directors of the irrigation district along with the natural flow. The natural flow along with the stored water is normally sufficient to supply all demands for water on the South Fork Pit River throughout the

irrigation season. The daily mean discharge of South Fork Pit River near Jess Valley is presented in Table A-55, South Fork Pit River Near Likely in Table A-54, and Pine Creek Near Alturas in Table A-56. The releases from West Valley Reservoir are included in the flows of South Fork Pit River near Likely; this is presented graphically on Plate 3.

Methods of Distribution

On the tributary streams, the water is distributed on a continuous flow basis through each users individual ditch with the fields being flooded through small lateral ditches. The users on the South Fork Pit River generally use the check and border method of irrigation. They normally receive water on a demand basis supplemented by water released from West Valley Reservoir. This must be modified to eliminate large peak demands from the reservoir and to utilize return flow as much as possible. There is no specific irrigation or rotation schedule used in the distribution of this water, and it varies each year.

1962 Distribution

Watermaster service started in the South Fork Pit River service area on April 1, 1962, and continued through September 30.

Pine Creek

A. Pine Creek Reservoir. The reservoir which was formerly owned by the California-Oregon Power Company is presently owned by the State Wildlife Conservation Board and is maintained and operated by Modoc County. This season the reservoir was operated by the watermaster on an informal basis (as it is not in the watermaster service area). The inlet works was in poor operating condition and made proper regulation difficult if not impossible at times. Early in August the intake pipeline parted and the flow to the

reservoir was reduced. This was repaired by the county and flow was again restored. There is no adequate measuring device of any kind on the diversion. Flow was measured by means of a temporary wooden weir during part of the season.

The October 13 storm raised the level of the reservoir but did no appreciable damage. A new spillway had been cut near the old one and during this storm both of these were in operation.

B. Pine Creek Diversions. The flow in Pine Creek is shown in Table A-56 and could be considered an average year. There were high flows in May and again in October. During the normal irrigation season, however, the stream tapered off during June, July and August. Regulation of water was done without the use of any headgates and measured without the convenience of Parshall flumes. Some wooden weirs are in use although these are in very poor condition.

During the season several metal weir plates were installed in the ditches below Diversions No. 1 and 5. This was done to settle minor disputes in these areas. Diversion No. 1 was rebuilt during October to provide the proper regulation of water at this point. Headgates were built for Diversion No. 1.

The only change in ownership was the sale of some land and the complete water right by Mr. Percy McDowell to Mr. Earl Sullivan. At this time, Mr. Sullivan obtained written permission from other users on the stream to use the water he had purchased either on his property towards the upper end of the ditch or at its present location on the McDowell property.

Many problems on Pine Creek could be alleviated by providing control gates and Parshall flumes or suitable weirs in each diversion.

Mill Creek and Fitzhugh Creek

A. Payne Ditch. This diversion was put into operation on June 19. Later in the summer a concrete structure was built to help check erosion of the streambed. A recorder was placed in the ditch with a weir to measure the inflow to Fitzhugh Creek from this ditch.

B. Bowman Ditch. There is no good diversion where this ditch leaves the North Fork of Fitzhugh Creek nor are there any adequate measuring devices. There has been considerable difficulty at this location because of this condition. It is recommended that a structure be built at this location to prevent any further disagreements over the measurement of flow at this location.

C. Yankee Jim Ditch. A problem existed during the season because of an inadequate diversion structure. This was remedied later in the year when a concrete structure was built.

D. Morgan Ditch. The diversion for the Morgan Ditch was in poor condition during the season. Plans were made for some reconstruction work late in the year.

South Fork Irrigation District

The problems in this area are those of distribution rather than of supply. West Valley Reservoir is the main storage for the district and there was sufficient storage this season to provide ample water for irrigation.

Water was diverted into West Valley Reservoir from the Pit River until June 22. The actual amount of water diverted can only be estimated as there is no facility for measuring this water.

The Pit River Ranch leased their land to several leasees this year and the water was handled by the ranch manager.

It is necessary for the users to inform the watermaster of their irrigation needs well in advance so that releases can be made from the reservoir.

Mr. Peter McGowa rebuilt a dam in the west canal in cooperation with the Soil Conservation Service. The flashboard portion of Wearhouse Dam was replaced after it was washed away during high water. Very little new construction was done in this area this year. Several of the old structures are in need of maintenance.

Hot Springs Valley Irrigation District

This area was excluded from watermaster service in 1962 as per request by the users.

Surprise Valley Watermaster Service Area

General Description

The Surprise Valley service area is located in the extreme eastern part of Modoc County. There are 177 water right owners in the service area with total allotments of 315.23 cubic feet per second. The source of supply is comprised of 10 individual creek systems rising on the eastern slope of the Warner Mountains. These streams are fed by snowmelt runoff and pursue a fast precipitious course down the Warner's eastern slope to the valley floor, at which point numerous and scattered diversion ditches convey water to the irrigated lands. Nearly all of the place of use is the irrigable lands situated in a long, narrow area between the foot of the Warner's and the Alakli Lakes, which lie in the center of Surprise Valley.

Surprise Valley extends in a north-south direction approximately 50 miles with an average width of 8 to 10 miles and is bordered on the north, south, and west by the rugged Warner Range and on the east by the typical mountainous desert terrain of Nevada. The valley floor is at an elevation of approximately 4,700 feet.

Water Supply

The water supply is derived almost entirely from snowmelt with only minor spring fed flows in the latter part of the season. There are no economically feasible storage sites on the service area creeks. Because of this lack of regulation, the available water supply at any specific diversion point may vary immensely within a few hours as rising or falling temperatures from day to night combine with the relatively short and steep drainage areas to promote these fluctuations of flow.

Additionally, occasional summer thunder showers may cause a creek to discharge a flow of mammoth proportions for several hours. These flashes are apt to cause considerable damage in washouts and debris deposition, and are of such short duration that no beneficial use can be made of the water. Records of the daily mean discharge of the various streams within the service area are presented in Tables A-57 through A-66.

Method of Distribution

The continuous flow method of distribution is employed on most creeks; however, in a few instances the available water supply is rotated among the users in accordance with either decree schedules or a program mutually acceptable to the users.

Alfalfa and meadow hay, the major crops grown in the valley, are irrigated in most instances by wild flooding. There are also considerable lands dependent upon subsurface irrigation. In addition, recent development of numerous deep wells has popularized the sprinkler method of irrigation. This latter method will of necessity be limited in future growth both by available ground water supply and cost of installation.

To facilitate distribution of irrigation waters, a program of constructing permanent diversion dams, headgates, and measuring devices has been initiated in recent years. Although the basic problems of discharge variation and debris deposition are virtually unsolvable, these control devices afford considerable assistance to the distribution by the watermaster.

1962 Distribution

Watermaster service was started in the Surprise Valley service area on March 16, 1962, and continued until September 30. In general, the

1962 irrigation season showed marked improvement over the prior three consecutive dry years. While the total available stream runoff was below normal, several creeks approached average runoff.

A very cold, late spring greatly slowed the growth of meadow hay somewhat neutralizing the effect of the increased water supply. In addition, there was no appreciable precipitation during the summer months.

Bidwell Creek. Total stream runoff of Bidwell Creek during the irrigation season from March 1 through September 30 was approximately 10,000 acre-feet. Since Bidwell Creek has been under watermaster service a relatively short time, since 1955, records are not available to accurately determine the mean seasonal runoff.

Throughout April, May, and early June there was ample water available for all priorities and as a result few difficulties in distribution were encountered during that period. Historically, Bidwell Creek has the greatest amount of runoff of all the Surprise Valley Creeks and in a reasonably good year such as 1962, produces an entirely adequate water supply.

From late June and continuing throughout the remainder of the season, the discharge of Bidwell Creek dropped off at a fairly steady rate and finally reached a low of approximately 3 cfs during the month of September. This amount was adequate for all first priority allotments.

In keeping with the general policy of the department, the watermaster, while not responsible for continual surveillance of ditch systems, set up a rotation program for certain of the town users at their request. This program proved satisfactory and appears to be the best method for resolving the problems among numerous owners of small water rights located on the same ditch.

The United States in trust for the Indian Service installed a concrete diversion dam with headgate and Parshall measuring flume in Bidwell Creek at Diversion No. 12. This structure completes the major projects planned for Bidwell Creek. A few small diversion boxes may be constructed in several of the ditches during the next year.

Mill Creek. Total stream runoff available to Mill Creek users during the irrigation season of April 1 through September 30 was 3,571 acre-feet which is approximately 61 percent of normal. This amount was considerably below that of most of the Surprise Valley creeks; however, better irrigation than would ordinarily be expected from such a runoff was attained primarily because of the sustained snowmelt, an unusual occurrence in Surprise Valley.

The unusually cold spring caused poor yields from meadow hay for most of the ranches in this area.

During most of April, May, and the first half of June there was water available to supply between 65 and 85 percent of the third priorities with about 3 or 4 days of sufficient flow to satisfy fourth priorities. From that time on the discharge of Mill Creek decreased steadily, cutting into second priorities in mid-July and into first priorities in mid-August. Throughout the remainder of the season the flow held fairly constant at 1.5 to 1.6 cfs, about 50 percent of first priority allotments. These latter months are usually difficult as the area has a large number of small domestic, garden, and stockwater rights to be served.

The West Branch users repaired their portion of the main channel "Y" structure to the extent of placing a new concrete floor and cutoff walls both upstream and downstream. This side of the structure had deteriorated considerably and was in danger of washout from downstream undercutting.

The Wimer Branch users will repair their portion of the above structure during the 1963 season.

Contact was made with nearly all town users in Lake City with regard to constructing adequate headwalls, headgates, and measuring devices. Due to the severe October storm actual construction was postponed until next season.

The 2-foot Parshall flume at Diversion No. 24, was repaired by installing a new 6-inch floor. New weir boards with metal facings will be installed at this diversion during the next season.

Soldier Creek. Total stream runoff available to Soldier Creek users during the irrigation season was 3,268 acre-feet which is approximately 81 percent of normal. Fifth priority water was available to lower users for the first time since 1958. This water reached the lowest users during the third and fourth rotation periods.

Although drought conditions of the past three years were alleviated, cold weather held back hay growth and yields were less than expected.

The new concrete diversion structure at the head of the East and West channels together with metal slide gates and weirs was placed in operation this season and proved to be of great value to the watermaster in regulating flow between the two channels.

No major construction was accomplished on Soldier Creek in 1962. A study of the upper users diversion facilities was undertaken and it is anticipated that at least one or two plans for major improvements will be submitted for review by the users during the 1963 season.

It is also recommended that a Parshall measuring flume be constructed near the lower end of the West Channel.

When the above plans are realized the Soldier Creek diversion structures will be up to standards as set forth in the decree.

Pine Creek. Total stream runoff available to Pine Creek users during the irrigation season was 1,499 acre-feet, or approximately 105 percent of normal. This was the highest of all Surprise Valley creeks in terms of percent of normal. However, hay yield was lower than anticipated due to cold weather.

The stream system was operated according to the rotation schedule as set forth in the court decree. This is the only creek in the watermaster service area that does not have continuous flow rights.

No serious distribution problems were encountered this season and nearly three rotations were completed.

It is recommended that adequate repairs be made to the structure at the head of the North and South Channels during the 1963 season.

Cedar Creek. Total stream runoff available to Cedar Creek users during the irrigation season was 2,252 acre-feet. There was water available for third and fourth priorities for only a few days in mid-April; however, these users actually received water for a period of approximately 10 days due to non-use by several higher priorities upstream.

Second priority water was available in varying amounts until mid-June. However, a rotation program was set up for the second priority lower users on May 5 and continued on until June 5 when all second priority water was delivered to the upper users. The sole first priority user received water in steadily declining amounts throughout the remainder of the season.

The Street Ditch No. 8, the Acty Ditch No. 9, and the Beebe Ditch No. 10, were abandoned and a new combined diversion point established near the location of the former Acty Ditch No.9. A concrete dam with headgates

and measuring facilities, including necessary ditch realignments, was constructed near the former Acty Ditch No. 9 diversion.

A concrete headwall was constructed at Diversion No. 4. A screw-type headgate and a 2-foot Parshall flume are scheduled for installation at this diversion during the 1963 season.

It is recommended that a headwall and headgate be installed at Diversion No. 6 during the 1963 season.

Deep Creek. Total stream runoff available to Deep Creek users was 2,450 acre-feet or approximately 62 percent of normal. This figure is somewhat below most other creeks in Surprise Valley; however, due to an unusually consistent snowmelt, optimum water usage was enjoyed and a reasonably good year resulted from the irrigation standpoint. However, as was the case with the general valley area, hay yield was low due to cold weather.

At no time was there sufficient discharge from Deep Creek to fulfill fourth and fifth priority allotments, and only occasionally was there third priority water available. The only fourth priority user, while receiving no direct stream runoff, benefited from subirrigation on adjacent lands.

The existing diversion dam at the Sharp-Messier Ditch was repaired by addition of a south wing wall.

It is recommended that a Parshall flume be installed in both the Sharp-Messier Ditch and the House Ditch No. 5 during the 1963 season. It is further deemed necessary that an adequate control and measuring device be installed at the Wentzell lateral (Francis Page diversion), on the Company Ditch No. 1.

Owl Creek. Total stream runoff available to Owl Creek users was 5,848 acre-feet or approximately 89 percent of normal. Much credit

must be given to the flood control and distribution project completed in the fall of 1960 for delivering almost the entire amount of available runoff to the heads of the various irrigation ditches. In past years, channel losses averaged 25 percent of the discharge available above all diversions. This project through means of two underground pipes 300 feet and 600 feet in length, and an 1,800-foot open flume together with two division boxes controlled by screw-type headgates has proven of immense value both in flood periods and during the irrigation season. Many serious distribution problems of prior years compounded by the complex priority system peculiar to Owl Creek were resolved through use of this facility.

Full priority allotments including the Allen-Arreche Ditch were available for nearly one month, an unusual occurrence for a year of sub-normal flow on this creek. This fact can be directly attributed to the efficiency of the aforementioned structures. However, as was the case in other areas of Surprise Valley, early cold weather proved harmful to the anticipated hay yield.

It is planned to repair the Davis-Stevenson division box on the Ennis-Arreche Ditch during the 1963 season.

Rader Creek. Total stream runoff available to Rader Creek users was 3,326 acre-feet or approximately 92 percent of normal. The snowmelting process was unusually constant enabling the ranches to achieve optimum irrigation benefits.

Full priorities were satisfied from May until late June with a steadily declining flow available from that time through the remainder of the season. As expected, the months of August and September produced extremely low discharges and, because of high channel loss, created severe shortages in stock and garden water supplies.

It is recommended that a measuring device be installed in the Glouster Ditch No. 2. Also that adequate repairs be made to the Minto Weir complex.

Eagle Creek. Total stream runoff available to Eagle Creek users was 4,148 acre-feet. Conditions were vastly improved over the three previous dry years, although cold weather in May resulted in a hay yield considerably less than what would be expected for this type of year. Fourth priority water was available from late May until late June, after which the flow receded steadily throughout the remainder of the season. During the months of August and September extreme low flows required close supervision of distribution to ensure that all first priority domestic, garden, and stockwater rights were fulfilled.

A 3-foot Parshall flume was constructed in the main channel of Eagle Creek near the lower Eagleville road for measurement of water delivered to the Harris Ranches.

A screw-type headgate is to be installed at the Gee-Grider diversion dam during the coming winter months.

With the exception of a few minor repairs needed and several headgates, the construction program for Eagle Creek is nearly complete.

Emerson Creek. Total stream runoff available to Emerson Creek users was 2,873 acre-feet or approximately 75 percent of normal. Despite this being the largest runoff since 1958, most of the Emerson Creek users found it necessary to operate their deep wells for long periods to provide supplemental irrigation waters. This area has a far higher percent of ranches with large irrigation wells than any other in Surprise Valley. Primary contributing factor in creating this situation is the large number of users in relation to the total flow of the creek. During any

sub-normal year each users flow is so reduced that it is extremely difficult to obtain a sufficient irrigating head for any sizeable acreage. As a result, the ranchers began to seek relief through use of wells. High pumping costs and a general lowering of the ground water table are of some concern to these users.

There was no fourth priority and very little third priority water available. Beginning in mid-May and continuing through late June, second priority water was available in steadily declining quantities. Throughout the remainder of the season discharge in Emerson Creek was available only to first priority users reaching a low of approximately 75 percent of said priority in mid-September.

Three screw-type headgates were installed at the upper users main diversion dam.

Nearly all diversion points are in excellent condition and no major projects are planned for the near future on Emerson Creek.

Special Occurrences

Surprise Valley was subjected in mid-October to one of the most concentrated rainfall storms in the recorded history of the area. A total of more than 6.5 inches of precipitation was measured at the U. S. Soil Conservation Office in Decarville during the period October 10 to October 13.

From a point about 5 miles south of Cedarville, and extending nearly to Eagleville, the storm was considerably intensified, although no official records for that area are available. Reasonable estimates place peak discharges of creeks in this area at or near record levels.

Damage in most areas was held to a minimum due in large measure to the various diversion dams and control projects, which prevented much of the usual ditch erosion problems normally occurring during flash floods.

Most of the needed repair work and channel cleaning has been accomplished throughout the valley, so that normal irrigation may proceed with the melting of the snowpack next spring.

Susan River Watermaster Service Area

General Description

The Susan River service area is located in the southern part of Lassen County in the vicinity of the Town of Susanville. There are 166 water right owners in the service area with total allotments of 351.922 cubic feet per second. The source of supply is comprised of three stream systems. They are as follows: Susan River and tributaries, Baxter Creek and tributaries, and Parker Creek.

Susan River has its sources on the east slope of the Sierra Nevada Mountains in the southwesterly portion of Lassen County immediately east of Lassen National Park at an elevation of about 7,900 feet. Its channel runs easterly from Silver Lake through McCoy Flat Reservoir, through Susanville, and on to Honey Lake.

Susan River has four major tributaries; Piute Creek (which comes in from the north at Susanville), Gold Run and Lassen Creeks (which come in from the south between Susanville and Johnstonville), and Willow Creek (which is tributary from the north above Standish). Gold Run and Lassen Creeks head on the north slope of Diamond Mountain at an elevation of about 7,600 feet. The watersheds of Piute and Willow Creeks are lower and they head on the south slopes of Round Valley Mountains.

A short distance below the confluence of Willow Creek with Susan River the river channel divides into three branches known as Tanner Slough Channel on the north, Old Channel in the middle, and Dill Slough Channel on the south. Two channels take off of Dill Slough on the south known as Hartson Slough and Whitehead Slough.

The Baxter Creek stream system is situated in Honey Lake Valley on the east slope of the Sierra Nevada about 10 miles southeast of Susanville in

the southern portion of Lassen County. The principal streams in the Baxter Creek stream system are Baxter Creek (which rises in the extreme western portion of the basin and flows in an easterly direction), Elesian Creek, Sloss Creek, and Bankhead Creek (tributary to Baxter Creek from the south). Elesian Creek has three tributaries; namely, North Fork Elesian Creek, South Fork Elesian Creek, and Kanavel Creek.

Parker Creek is situated in Honey Lake Valley on the east slope of the Sierra Nevada about 15 miles southeast of Susanville in the southern portion of Lassen County. It has its source on the east slope of Diamond Mountain and flows east for about 5 miles into Honey Lake.

The place of use in the Susan River service area is primarily in Honey Lake Valley between Susanville and the northwest shore of Honey Lake, a distance of about 25 miles. The valley floor is at an elevation of about 4,000 feet.

Water Supply

The water supply in the Susan River service area comes from two major sources; snowmelt and springs. The snow that falls on the Willow Creek Valley and Piute Creek watersheds, which embrace more than one-half of the Susan River stream system, melts early in the spring and usually is entirely gone by the first of May. The irrigation requirements from this portion of the stream system after the first of May are almost entirely dependent upon the flow of perennial springs which remain fairly constant throughout the year.

Under normal conditions the flows of Lassen, Gold Run, Baxter, and Parker Creeks and of Susan River above Susanville are fairly well sustained from melting snows until early in June. The flow from perennial springs in this portion of the water system is comparatively small. The Lassen

Irrigation District stores supplemental water in Hog Flat and McCoy Reservoirs, on the headwaters of the Susan River, which is conveyed through the Susan River channel and rediverted into their system. Records of this flow are presented in Table A-72 and on Plate 4. Records of the daily mean discharge of Susan River, Gold Run, and Willow Creek, at various stations, are presented in Tables A-67 through A-74.

Methods of Distribution

Irrigation in the Susan River service area is accomplished by placing diversion dams in the main channel of the stream system to raise the water to the level required to divert the water into the canals and diversion ditches. These diversion dams are relatively large on the Susan River channel and much smaller on the tributaries. Various methods of irrigation are practiced, the most common of which is by wild flooding. By this method water is conveyed by a main ditch to the high point of the land to be irrigated and then distributed by laterals along the higher ridges of the tract, from which it is allowed to spread more or less at random over the area served by the ditch system. Some portions of the irrigated lands have been leveled permitting a more efficient use of water than is possible under wild flooding. Border checks and furrows are being put to wider use. Sub-irrigation occurs in some areas incidental to surface irrigation or as a result of seepage from ditches or creek channels.

1962 Distribution

Parker Creek. Parker Creek held up well until about June 1, when 100 percent first priority and about 50 percent second priority water was available. The supply declined rapidly until about June 20, when only first priority water was available. This level was maintained for the rest of the 1962 season.

Baxter Creek. Baxter Creek held up exceptionally well due to cold weather which retarded the snowmelt. Regulation was begin about May 15, when the water dropped to 100 percent of first and second priority and 50 percent of third priority. This declined slowly until June 15, when 60 percent of first priority was available. After July 15, stockwater only was available throughout the stream system.

Lassen-Holtzclaw Creek. The water supply in Lassen-Holtzclaw Creek was sufficient to supply all priorities until June 1. From this date on, the Hulsman Ranch was entitled to all the water available in this stream system.

Hills Creek. The water supply in Hills Creek was sufficient to meet all allotments until about June 10. On July 1, about 40 percent of allotments was available, and on July 15, stockwater only was available. All the storage facilities on Hills Creek were filled during the spring runoff.

Gold Run Creek. The water supply in Gold Run was sufficient to meet all allotments until about June 15. On July 1, 100 percent of first and second priority was available. This declined until stockwater only was available after July 15.

Willow Creek. The water supply in Willow Creek was fair in the early spring during the snowmelt period, but after this period, the spring-fed portion of the flow in Willow Creek was below normal. Records were kept on the inflow to Reid Barron's Ranch beginning on May 15 and continuing until September 20. One hundred percent of first priority water was available throughout the irrigation season. In May, 50 percent of second priority was available, and this decreased until about 18 percent of second priority was available in the middle of July. The flow then increased until about 35 percent of second priority was available at the end of the irrigation season.

Due to the fact that the channel of Willow Creek below the lower boundary of the Barron Ranch was cleaned by Mr. Hanson after the 1961 water season, water was able to flow freely off the Barron Ranch for most of the summer. The growth in the channel created a backwater problem at the lower end of the Barron Ranch during the early part of July. Mr. Hanson and Mr. Hagata were informed that they either had to kill the growth or water would not be allowed to stand deeper than 6 inches in the cut of the dam regardless of whether or not they received their allotment at this elevation.

Susan River. The water supply in the Susan River was sufficient to satisfy all demands until early June. The water supply then decreased rapidly until by June 15 only first and second priorities in the upper Susan River area were available. By August 15 only first priority was available to the upstream users. In the lower Susan River area, water for first priority users was available throughout the irrigation season. One hundred percent of second priority water was available until about June 10, and then it decreased rapidly until stockwater only was available.

The installation of headgates in the area, which was begun in the 1961 season, was continued through the 1962 season. Four more headgates were installed in the diversions from the Susan River this season.

There were nine headgates constructed on the Old Channel of the Susan River this fall, and there is one left to be installed. The one remaining is to be placed in the wing wall of a new diversion dam which will be constructed prior to the next irrigation season.

Storage Reservoirs. Neither McCoy or Hog Flat Reservoirs filled during the 1962 season. Due to a cold spring and the snowmelt lasting longer in the spring, they were able to hold their water in the mountains until later in the irrigation season. This made possible three irrigations including one in August. The storage in the major reservoirs was entirely depleted by the end of August.

APPENDIX A

STREAMFLOW RECORDS

APPENDIX A

STREAMFLOW RECORDS

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TABLE A-1

DAILY MEAN DISCHARGE
OF ASH CREEK AT ADIN

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	231	79	62	11	23	13
2	342	70	54	11	23	14
3	238	62	50	11	23	9.0
4	202	58	45	12	24	7.9
5	192	51	41	12	25	13
6	175	48	34	12	22	14
7	169	44	27	11	21	4.6
8	167	40	25	9.4	22	10
9	155	38	20	9.8	23	16
10	129	33	19	13	24	18
11	116	27	16	15	23	17
12	106	24	14	16	21	16
13	105	38	14	15	21	16
14	103	43	15	16	21	14
15	113	30	16	17	20	13
16	113	28	16	18	20	15
17	106	23	13	18	20	14
18	106	28	13	18	19	14
19	102	53	13	17	17	14
20	93	48	12	20	18	16
21	81	47	11	24	20	17
22	81	42	12	20	20	15
23	79	62	11	26	20	16
24	85	63	11	23	18	14
25	75	64	11	35	13	13
26	62	79	11	33	7.5	12
27	62	63	11	28	2.6	16
28	93	73	11	29	3.3	22
29	90	183	11	28	3.5	23
30	80	88	10	23	9.8	21
31		74		24	12	
Mean	128	54.9	21.0	18.6	18.1	14.6
Runoff in acre-feet	7,638	3,378	1,248	1,141	1,110	868

TABLE A-2

DAILY MEAN DISCHARGE OF RUSH CREEK NEAR ADIN

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	71	9.7	14	1.3	1.3	1.6
2	65	9.6	13	1.3	1.5	1.6
3	61	9.4	12	1.4	2.6	1.6
4	64	9.3	11	1.4	2.4	1.7
5	64	8.0	9.5	1.3	1.3	1.7
6	60	7.7	8.9	1.3	1.5	1.7
7	62	7.5	7.7	1.2	1.5	1.8
8	58	7.8	6.6	1.3	1.5	1.6
9	51	7.4	5.7	1.4	1.7	1.5
10	42	6.8	5.2	1.4	2.2	1.6
11	38	6.3	4.2	1.4	2.3	1.7
12	38	5.6	4.5	1.4	2.4	1.7
13	37	5.6	4.4	1.6	1.9	1.7
14	36	5.6	4.0	1.5	1.3	1.7
15	34	5.6	3.7	1.4	1.3	1.5
16	30	5.4	3.4	1.3	1.4	1.4
17	26	5.2	3.4	1.4	1.4	1.4
18	24	5.9	3.4	1.4	1.5	1.4
19	24	5.9	3.3	1.5	1.5	1.4
20	19	5.7	3.0	1.5	1.2	1.6
21	16	5.6	2.9	1.5	1.2	1.7
22	14	5.4	2.8	1.5	1.2	1.6
23	14	7.8	2.8	1.6	1.2	1.6
24	14	7.7	2.7	2.1	1.2	1.7
25	13	8.1	3.0	1.7	1.4	1.7
26	12	8.9	2.5	1.9	1.5	1.8
27	12	8.5	1.7	2.0	1.5	1.7
28	12	11	1.3	1.8	1.6	2.0
29	12	25	1.4	1.5	1.6	2.0
30	10	18	1.4	1.5	1.6	2.0
31		15		1.5	1.6	
Mean	34.4	8.4	5.1	1.5	1.6	1.7
Runoff in acre-feet	2,049	518	304	92	98	99

TABLE A-3

DAILY MEAN DISCHARGE OF WILLOW CREEK
NEAR ADIN

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	20	7.0	5.4	4.3	4.5	4.7
2	21	6.5	5.3	5.0	4.4	4.7
3	20	6.2	5.3	4.8	4.6	4.8
4	20	5.9	5.5	4.9	4.6	5.1
5	20	5.7	5.6	4.7	4.7	5.1
6	19	5.7	5.5	4.6	4.7	4.9
7	18	5.9	5.5	4.5	4.7	4.9
8	19	5.6	5.3	4.7	4.6	5.0
9	16	5.6	5.0	4.6	4.8	5.0
10	13	5.5	5.0	4.6	4.7	5.1
11	12	5.5	4.7	4.5	4.6	5.1
12	12	5.7	4.6	4.5	4.6	5.1
13	9.1	6.6	4.6	4.4	4.6	5.2
14	8.1	6.5	4.7	4.4	4.6	5.2
15	8.7	5.9	4.6	4.2	4.5	5.1
16	8.8	5.9	4.6	4.3	4.6	5.2
17	8.1	5.9	5.1	4.2	4.6	5.1
18	7.8	6.7	5.1	4.2	4.5	5.1
19	8.2	8.0	5.4	4.3	4.3	5.2
20	8.4	7.2	5.4	4.2	4.6	5.3
21	7.7	7.0	5.1	4.3	4.6	5.2
22	7.8	6.2	5.3	4.3	4.7	5.3
23	7.4	7.5	5.0	4.0	4.7	5.3
24	6.9	7.0	4.9	5.1	4.7	5.4
25	6.2	8.1	4.7	4.5	4.6	5.2
26	6.4	7.9	4.6	4.4	4.8	5.2
27	7.3	7.7	4.9	4.4	4.8	5.4
28	9.4	6.9	4.9	4.4	4.7	5.7
29	8.8	6.7	4.5	4.5	4.8	5.4
30	7.3	6.2	4.0	4.6	4.8	5.3
31		6.1		4.5	4.7	
Mean	11.7	6.5	5.0	4.5	4.6	5.1
Runoff in acre-feet	699	398	298	276	285	306

TABLE A-4

DAILY MEAN DISCHARGE OF PIT RIVER
NEAR CANBY

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	229	205	612	45	5.7	22
2	272	166	594	43	6.2	23
3	281	221	484	38	8.8	30
4	290	194	324	54	9.7	40
5	300	129	215	51	7.0	86
6	330	79	239	51	4.9	76
7	325	26	179	61	6.6	68
8	335	26	88	56	12	41
9	395	30	61	86	6.2	30
10	384	32	17	43	4.9	72
11	340	61	11	19	4.1	24
12	305	103	16	12	55	16
13	202	35	23	9.7	43	19
14	258	56	16	12	30	15
15	245	73	24	14	41	23
16	245	96	40	19	61	13
17	163	114	43	13	38	14
18	163	209	47	12	23	20
19	198	170	51	32	40	19
20	225	173	54	43	41	17
21	184	269	43	20	29	17
22	184	334	49	14	16	17
23	100	456	71	12	14	19
24	82	576	73	12	20	29
25	76	508	43	14	19	38
26	135	524	24	27	23	22
27	276	504	27	22	26	19
28	229	552	38	12	26	17
29	194	646	73	16	26	17
30	170	532	54	20	26	17
31		552		16	24	
Mean	237	247	121	29.0	22.5	29.3
Runoff in acre-feet	14,110	15,180	7,210	1,780	1,380	1,750

TABLE A-5

DAILY MEAN DISCHARGE
OF PIT RIVER NEAR BIEBER

April through September 1962
(In second-feet

Day	April	May	June	July	August	September
1	975	97	586	3.1	0.2	0
2	900	63	631	12	.2	.1
3	922	49	620	9.2	.2	.1
4	952	197	581	4.9	.2	0
5	878	394	515	1.7	.2	0
6	815	313	425	.6	.2	0
7	776	209	252	.4	.2	0
8	756	162	246	.4	.2	0
9	730	108	118	11	.3	0
10	718	53	88	23	.3	0
11	692	34	59	21	.3	0
12	620	31	17	12	.3	0
13	565	30	22	7.1	.2	0
14	452	32	11	.6	.2	0
15	456	27	9.2	.2	.2	0
16	430	25	9.6	.1	.2	0
17	390	26	7.5	.1	.2	0
18	368	29	6.0	.1	.1	0
19	278	49	9.5	.1	.1	0
20	302	90	21	.1	.1	0
21	285	88	6.7	.1	.1	0
22	271	67	1.7	.2	.1	0
23	278	145	.6	.2	.1	0
24	224	301	.5	.3	.1	0
25	121	550	.5	.4	.1	0
26	59	565	.6	.3	.1	0
27	35	620	.6	.2	.1	0
28	66	661	.6	.2	.1	0
29	42	661	.6	.4	0	0
30	82	625	.5	.4	0	0
31		586		.3	0	
Mean	481	222	142	3.57	0.16	0.07
Runoff in acre-feet	28,640	13,660	8,420	220	9.7	0.4

TABLE A-6

RELEASES FROM ROBERTS RESERVOIR
(Cubic feet per second)

1962 Season

Date	June	July	Aug.	Sept.
1			14.5	23
2			25	6.0
3			25	
4			25	7.5
5			25	17.5
6			24	No
7			24	re
8			17.0	le
9			13.0	as
10			13.0	e
11	No	No	13.0	
12	o	o	13.0	5.5
13			12.0	16.0
14	r	r	6.5	15.0
15	e	e	----	12.0
16	le	le	13.0	10.0
17	a	a	25	8.0
18	s	s	25	7.0
19	e	e	23	6.5
20			24	5.0
21			----	1.5
22			----	No
23			----	o
24			----	
25			----	re
26			----	le
27			----	ea
28			----	s
29			----	e
30			9.0	
31			24	
ACRE-FEET			767	281

Total Acre-Feet = 1,048

TABLE A-7

DAILY MEAN DISCHARGE OF BURNEY CREEK
NEAR BURNEY

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	85	123	42	11	9.0	9.9
2	95	120	40	10	8.8	9.5
3	97	118	42	8.3	9.1	9.6
4	106	116	36	8.8	9.8	9.0
5	117	104	32	9.5	9.1	9.1
6	125	96	33	8.2	8.1	9.1
7	133	95	31	7.7	7.4	8.5
8	141	109	31	7.5	7.0	7.5
9	143	127	34	7.9	8.3	7.7
10	138	105	31	8.0	8.6	7.8
11	136	97	27	8.4	8.4	8.0
12	140	88	26	8.6	8.3	8.4
13	152	91	27	9.9	9.1	8.0
14	166	88	24	11	8.5	7.9
15	181	94	21	11	8.0	8.1
16	167	86	19	10	7.4	8.3
17	168	79	20	11	7.4	7.7
18	159	88	19	11	8.0	7.8
19	158	88	14	11	8.3	7.7
20	140	76	14	11	8.6	8.3
21	127	66	15	10	8.5	8.5
22	127	65	14	11	7.9	8.4
23	138	72	13	11	8.2	8.2
24	140	66	12	11	8.5	8.1
25	135	78	11	11	8.2	5.8
26	123	84	11	11	8.3	6.4
27	147	72	13	11	7.3	8.0
28	227	65	13	11	7.2	11
29	160	62	11	11	7.6	17
30	136	58	10	10	7.4	15
31		52		9.8	8.8	
Mean	140	88.0	22.9	9.9	8.2	8.8
Runoff in acre-feet	8,344	5,411	1,361	610	506	524

TABLE A-8

DAILY MEAN DISCHARGE OF BUTTE CREEK
NEAR CHICO

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	497	485	321	176	132	118
2	515	485	321	168	126	118
3	527	503	316	168	124	118
4	545	521	303	165	132	115
5	558	521	290	162	139	118
6	558	527	285	162	135	118
7	571	515	272	158	132	118
8	604	521	267	158	132	118
9	624	539	267	155	142	115
10	584	497	267	155	142	115
11	558	468	254	155	135	118
12	571	446	249	155	132	118
13	604	430	244	155	129	118
14	624	410	272	152	124	112
15	666	395	262	148	124	104
16	645	400	244	148	124	104
17	604	390	236	145	121	107
18	590	390	228	145	121	118
19	617	380	216	145	121	115
20	584	355	208	145	121	118
21	539	340	204	142	118	118
22	527	350	200	142	118	121
23	545	350	196	142	121	121
24	558	340	193	142	121	121
25	564	335	186	142	118	118
26	539	335	186	142	118	121
27	558	335	182	139	115	121
28	631	321	179	142	118	126
29	533	335	179	139	118	135
30	497	335	176	139	118	129
31		330		135	118	
Mean	571	416	240	151	125	118
Runoff in acre-feet	33,990	25,560	14,290	9,250	7,710	7,010

TABLE A-9

DAILY MEAN DISCHARGE OF BUTTE CREEK
BELOW UPPER COLONY DAM

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1			56	19	5.8	5.0
2			56	19	6.4	5.0
3			53	19	6.4	5.4
4			47	19	6.4	5.4
5			45	20	6.4	5.4
6			44	20	6.4	5.0
7			38	20	6.4	5.0
8			35	20	6.4	5.0
9			34	20	6.4	5.4
10			34	20	6.9	5.4
11			31	18	7.4	5.0
12			31	16	7.4	5.0
13			30	14	7.4	8.4
14		202	33	14	6.9	12
15		180	35	16	6.9	15
16		180	32	13	6.4	18
17		170	31	13	5.8	21
18		170	31	12	5.8	23
19		170	29	12	5.8	25
20		130	28	12	5.8	25
21		100	26	12	5.8	25
22		60	22	11	5.4	26
23		60	21	11	5.0	26
24		63	21	9.7	5.8	26
25		60	20	8.4	6.4	23
26		53	17	7.1	6.9	21
27		53	16	5.8	6.4	
28		53	18	6.4	5.8	
29		56	19	6.4	5.4	
30		60	19	6.4	5.4	
31		56		6.4	5.0	
Mean		104	31.7	13.8	6.2	13.7
Runoff in acre-feet		3,710	1,880	845	382	705

TABLE A-10

DAILY MEAN DISCHARGE
OF DURHAM COLONY DITCH

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1		51	52	54	46	36
2		46	52	53	45	36
3		43	50	53	44	36
4		43	47	53	44	37
5		41	46	50	45	37
6		43	43	49	43	37
7		46	46	49	43	37
8		46	52	48	42	37
9		46	52	45	43	39
10		50	47	43	44	37
11		50	48	43	43	37
12		51	56	47	44	37
13		52	56	50	43	41
14		53	59	49	43	44
15		51	59	48	41	47
16		51	57	48	34	50
17		53	56	48	31	53
18		56	55	49	36	57
19		56	55	49	38	61
20		53	55	50	37	61
21		52	56	51	36	61
22		50	53	51	35	62
23		52	53	52	35	62
24		53	52	51	35	60
25		52	51	53	35	59
26		51	52	56	35	59
27		51	53	55	34	
28		51	53	56	35	
29		52	54	57	34	
30		52	54	55	34	
31		52		48	35	
Mean		50.0	51.6	50.4	39.1	46.9
Runoff in acre-feet		3,070	3,060	3,090	2,400	2,420

TABLE A-11

DAILY MEAN DISCHARGE OF DAYTON DITCH
AT EDGAR SLOUGH

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1				24	18	16
2				24	18	16
3				24	17	16
4			24	23	18	16
5			25	23	19	16
6			24	24	18	16
7			24	23	17	16
8			24	19	17	16
9			24	19	17	16
10			24	17	17	12
11			23	17	17	
12			24	17	16	
13			23	17	17	
14			24	17	17	
15			24	17	17	
16			24	17	16	
17			24	17	17	
18			24	17	17	
19			25	17	16	
20			26	17	16	
21			25	19	17	
22			25	18	17	
23			24	18	17	
24			24	18	17	
25			24	18	17	
26			24	18	17	
27			23	18	17	
28			23	18	17	
29			22	18	16	
30			22	18	16	
31				19	16	
Mean			23.9	19.0	17.0	10.3
Runoff in acre-feet			1,280	1,170	1,040	310

TABLE A-12

DAILY MEAN DISCHARGE
OF PARROTT DITCH

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1		170	103	90	75	69
2		170	103	89	68	68
3		134	105	88	69	67
4		105	108	86	76	67
5		85	115	85	81	66
6		88	129	85	81	67
7		88	135	83	78	67
8		88	135	81	77	67
9		88	135	83	82	65
10		88	137	89	87	65
11		105	137	88	81	65
12		105	129	86	78	67
13		105	127	88	74	53
14		105	134	81	70	39
15		110	135	86	71	25
16		119	128	86	75	25
17		110	118	79	77	21
18		102	101	81	71	7.4
19		102	99	79	71	5.9
20		101	95	78	72	5.9
21		101	97	76	73	5.9
22		117	105	73	73	5.9
23		115	105	78	75	10
24		105	105	78	75	20
25		105	102	77	75	29
26		113	99	78	72	33
27		110	98	76	71	
28		108	96	77	70	
29		103	94	77	71	
30	170	103	92	76	71	
31		103		76	70	
Mean	170	108	113	81.7	74.5	41.8
Runoff in acre-feet	336	6,635	6,734	5,015	4,574	2,150

TABLE A-13

DAILY MEAN DISCHARGE OF TOADTOWN CANAL
ABOVE BUTTE CANAL

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	6.3	74	76	76	64	58
2	3.9	74	76	74	64	58
3	1.0	74	77	70	64	58
4	1.6	75	77	75	66	59
5	7.7	77	75	70	66	58
6	29	76	72	75	66	57
7	31	77	73	75	66	58
8	26	72	73	72	65	57
9	34	72	74	74	65	57
10	48	75	74	74	65	58
11	42	76	74	74	64	59
12	44	76	75	74	66	59
13	48	76	74	74	66	56
14	55	76	74	73	66	45
15	58	76	74	74	66	45
16	57	75	74	74	64	44
17	66	74	74	73	62	48
18	70	74	75	76	59	56
19	73	73	75	77	59	56
20	78	73	76	82	60	57
21	76	73	75	78	58	60
22	76	74	75	76	58	61
23	74	74	74	76	58	61
24	75	75	74	74	57	60
25	72	75	74	75	56	58
26	75	74	74	76	57	60
27	76	74	74	74	58	59
28	75	73	74	72	56	66
29	76	76	75	71	58	68
30	75	76	76	70	58	63
31		76		65	59	
Mean	50.9	74.6	74.5	73.9	61.6	57.2
Runoff in acre-feet	3,031	4,584	4,435	4,543	3,789	3,403

TABLE A-14

DAILY MEAN DISCHARGE OF LITTLE COW CREEK
NEAR INGOT

(April through September 1962)
(In second-feet)

Day	April	May	June	July	August	September
1	149	98	50	12	7.6	5.7
2	152	99	48	11	7.3	5.9
3	155	99	46	9.9	6.8	6.0
4	157	100	41	9.9	7.7	6.2
5	163	94	37	9.7	8.2	5.9
6	164	91	35	8.8	8.2	5.9
7	169	89	34	8.2	8.7	6.4
8	180	96	33	8.0	10	6.3
9	178	96	32	8.6	12	6.5
10	163	84	30	8.3	10	6.7
11	159	79	28	8.1	9.4	7.5
12	159	73	25	7.9	9.3	7.2
13	164	79	23	7.2	8.4	7.1
14	173	71	25	6.8	8.1	7.2
15	177	68	24	5.7	7.9	6.9
16	159	63	22	5.6	7.6	5.6
17	150	61	20	5.8	6.7	5.1
18	140	70	18	5.4	7.0	4.4
19	146	73	16	7.1	6.9	5.2
20	130	64	14	7.6	6.5	5.3
21	114	60	14	7.3	6.6	5.4
22	112	59	13	7.1	6.8	5.5
23	118	62	13	7.6	6.5	5.7
24	124	57	13	7.4	6.4	5.8
25	118	56	13	6.7	6.3	4.9
26	110	56	13	6.5	6.0	4.7
27	165	53	13	6.4	5.8	5.8
28	156	51	12	6.8	5.7	12
29	119	53	12	7.4	5.8	12
30	101	55	12	8.1	5.8	8.4
31		53		7.3	5.6	
Mean	148	73.0	24.3	7.7	7.5	6.4
Runoff in acre-feet	8,775	4,487	1,446	476	459	383

TABLE A-15

DAILY MEAN DISCHARGE OF
OAK RUN CREEK NEAR OAK RUN

April through September 1962
(In second-feet

Day	April	May	June	July	August	September
1	13	6.4	3.8	1.4	1.5	2.9
2	12	6.2	3.8	1.4	1.6	2.8
3	12	5.9	3.9	1.5	1.8	1.9
4	11	5.4	4.0	2.2	2.6	1.8
5	11	4.6	3.7	2.3	1.8	2.6
6	10	4.6	3.3	2.0	2.0	2.1
7	9.9	4.3	3.4	2.2	2.2	2.0
8	9.9	5.3	3.4	1.7	3.0	2.0
9	9.5	5.2	2.2	1.3	4.2	2.1
10	9.0	5.0	2.3	1.8	3.6	2.3
11	8.5	6.4	2.4	2.1	3.4	2.6
12	5.4	6.4	2.6	1.7	2.8	2.6
13	5.9	7.8	2.2	1.6	2.4	2.3
14	6.5	7.3	3.3	1.6	2.6	2.7
15	7.2	7.6	3.2	1.3	2.5	3.3
16	7.6	6.8	3.3	1.5	2.6	3.2
17	7.6	6.5	2.3	1.6	2.0	2.8
18	7.2	6.8	3.0	1.6	2.0	2.9
19	8.6	6.5	3.2	2.0	2.1	3.1
20	8.6	6.4	2.6	1.9	2.1	3.6
21	7.6	6.0	2.4	1.6	1.8	3.2
22	6.7	5.9	2.4	1.6	1.3	2.6
23	6.4	5.9	2.6	1.3	3.1	2.2
24	6.4	5.8	2.5	1.6	5.2	2.2
25	6.2	5.6	1.9	1.4	4.4	2.0
26	5.8	5.6	2.0	1.6	2.2	1.8
27	7.8	4.0	2.0	1.7	2.2	2.4
28	7.3	3.4	2.4	1.6	2.2	5.3
29	6.5	3.4	2.0	1.6	2.6	4.5
30	6.5	3.2	1.2	1.4	2.4	3.9
31		3.9		1.3	2.5	
Mean	8.25	5.62	2.78	1.66	2.54	2.72
Runoff in acre-feet	491	345	165	102	156	162

TABLE A-16

DAILY MEAN DISCHARGE OF HAT CREEK
NEAR HAT CREEK

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	123	130	175	115	113	110
2	124	136	180	117	112	107
3	123	143	175	113	112	103
4	121	149	163	113	113	104
5	121	154	152	113	112	103
6	124	156	149	112	112	100
7	126	156	149	110	112	98
8	128	163	154	108	112	107
9	128	168	161	110	107	110
10	128	158	166	121	105	110
11	124	156	166	121	105	110
12	126	158	173	119	104	110
13	130	156	175	117	104	108
14	136	149	173	117	103	108
15	143	145	166	117	103	108
16	138	149	166	115	102	108
17	134	149	163	117	102	108
18	136	163	161	119	105	102
19	136	163	166	119	108	98
20	130	149	170	112	110	98
21	126	145	168	108	110	98
22	128	152	170	108	110	98
23	132	161	166	108	110	98
24	134	152	158	108	110	98
25	132	149	152	107	110	102
26	132	145	149	105	110	102
27	141	145	145	104	110	102
28	147	156	143	108	110	105
29	136	170	141	112	107	107
30	130	175	123	113	103	107
31		173		113	105	
Mean	131	154	161	113	108	104
Runoff in acre-feet	7,770	9,470	9,560	6,940	6,650	6,200

TABLE A-17

DAILY MEAN DISCHARGE OF INDIAN CREEK
NEAR TAYLORSVILLE

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	1,230	722	328	72	33	20
2	1,330	738	323	69	32	19
3	1,460	826	316	65	32	20
4	1,650	895	292	63	34	19
5	1,810	906	266	61	34	21
6	1,900	865	245	61	33	20
7	2,070	822	234	57	33	20
8	2,230	785	218	50	32	20
9	2,540	764	207	47	39	18
10	2,220	680	196	49	39	17
11	2,030	604	188	48	37	18
12	2,060	548	178	44	31	20
13	2,150	506	169	43	29	21
14	2,260	469	187	42	28	22
15	2,370	457	185	41	33	21
16	2,060	498	165	38	33	20
17	1,810	545	153	39	32	20
18	1,690	468	144	40	29	19
19	1,600	431	134	38	29	19
20	1,380	380	124	34	36	20
21	1,210	350	116	32	37	22
22	1,180	343	111	31	30	22
23	1,240	356	105	31	28	22
24	1,280	353	98	31	27	22
25	1,210	338	92	30	27	22
26	1,050	345	88	31	26	22
27	1,030	342	83	32	27	24
28	1,060	335	79	34	25	26
29	862	347	74	36	24	28
30	753	352	72	35	24	28
31		342		34	25	
Mean	1,624	539	172	43.8	30.9	21.0
Runoff in acre-feet	96,650	33,150	10,260	2,694	1,900	1,254

TABLE A-18

DAILY MEAN DISCHARGE OF LIGHTS CREEK
NEAR TAYLORSVILLE

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	157	134	59	13	4.2	2.0
2	165	148	57	12	4.0	1.9
3	179	163	54	11	3.9	1.9
4	204	173	50	11	4.9	1.8
5	234	165	46	10	5.5	1.8
6	246	156	43	9.7	4.9	1.5
7	271	150	41	9.3	4.5	1.4
8	279	144	39	9.3	4.1	1.5
9	271	135	37	9.0	7.5	1.5
10	230	119	36	8.6	6.3	1.4
11	217	108	34	8.6	5.5	1.6
12	242	101	32	8.7	4.9	1.6
13	276	90	33	8.2	3.9	1.9
14	327	86	37	8.2	3.5	2.1
15	324	82	34	7.8	3.2	2.1
16	282	83	29	7.4	2.9	2.0
17	255	78	27	7.1	2.6	1.8
18	248	75	26	7.0	2.5	1.7
19	232	74	24	6.6	2.5	1.8
20	192	69	23	5.8	2.7	1.9
21	181	66	21	5.4	2.7	2.0
22	191	65	20	5.0	2.4	1.9
23	211	65	19	4.7	2.2	1.8
24	221	63	18	4.6	2.1	1.7
25	203	64	17	4.5	1.8	1.7
26	176	71	16	4.6	1.6	1.6
27	189	64	16	4.4	1.7	2.3
28	187	62	15	5.0	1.6	3.5
29	148	64	14	9.3	1.7	4.3
30	135	63	13	5.6	1.8	3.2
31		62		4.8	1.8	
Mean	222	98.1	31.0	7.6	3.4	2.0
Runoff in acre-feet	13,240	6,034	1,845	468	209	117

TABLE A-19

DAILY MEAN DISCHARGE OF LITTLE LAST CHANCE CREEK
NEAR CHILCOOT

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1	1.0	8.4	90	2.0	2.1	1.4	0.4
2	1.0	13	84	2.0	2.2	20	0.3
3	1.0	11	67	2.3	2.3	36	0.3
4	1.0	9.2	69	2.4	2.3	39	0.3
5	1.0	10	75	2.1	2.4	45	0.4
6	1.0	10	75	2.2	2.4	46	0.4
7	1.0	10	77	79	2.5	44	0.4
8	1.0	11	106	134	2.2	43	0.3
9	1.0	11	102	134	2.3	75	0.3
10	1.0	8.8	102	141	2.2	92	0.4
11	1.0	8.0	124	123	2.2	90	0.4
12	1.0	8.3	141	107	2.8	89	0.2
13	1.0	8.2	141	106	3.2	88	0.2
14	1.0	10	134	109	2.5	86	0.3
15	1.0	9.4	75	111	2.6	84	0.2
16	1.6	7.8	63	111	2.6	80	0.3
17	1.8	6.5	30	69	2.8	83	0.2
18	1.8	6.4	25	48	2.7	80	0.2
19	2.1	5.6	3.5	49	2.4	80	0.2
20	2.5	4.6	3.2	46	2.2	57	0.3
21	2.6	3.7	3.0	22	2.2	19	0.4
22	2.5	3.7	2.7	5.0	2.1	19	0.4
23	2.6	3.5	2.8	4.9	2.6	13	0.3
24	2.6	2.9	3.0	4.8	2.6	0.9	0.3
25	3.4	24	2.6	4.4	2.0	0.7	0.4
26	4.9	65	2.5	3.0	1.6	0.5	0.5
27	6.8	94	2.8	2.1	1.6	0.4	0.4
28	7.7	99	2.3	2.2	1.6	0.4	0.4
29	7.7	101	2.1	2.0	1.8	0.4	0.4
30	7.8	99	2.1	2.1	1.7	0.3	0.3
31	7.8		2.0		1.5	0.3	
Mean	2.6	22.4	52.1	47.8	2.3	42.4	0.3
Runoff in acre-feet	161	1,335	3,203	2,841	139	2,605	19

TABLE A-20

DAILY MEAN DISCHARGE OF LITTLE TRUCKEE DITCH
AT HEAD

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1			59	60	7.9	2.0
2			59	60	7.3	1.9
3			59	59	6.8	1.9
4			59	59	7.0	2.1
5			58	59	7.0	2.2
6			58	58	6.5	2.2
7			58	54	5.9	2.1
8			58	49	5.7	2.0
9			60	45	7.0	2.0
10			60	41	6.2	2.0
11			60	41	5.4	2.0
12		7.3	60	46	4.9	2.1
13		22	60	40	4.6	2.0
14		22	59	36	4.2	2.0
15		21	57	32	4.0	2.0
16		21	59	29	3.7	1.9
17		20	54	27	3.5	1.9
18		21	58	25	3.3	1.9
19		23	59	22	3.3	1.9
20		25	60	20	3.3	1.9
21		29	60	17	3.5	1.9
22		32	60	16	3.3	1.9
23		45	56	14	3.1	1.9
24		42	52	14	2.8	2.0
25		35	56	13	2.6	2.1
26		34	60	13	2.3	2.0
27		34	60	15	2.2	1.8
28		40	60	12	2.1	1.8
29		53	60	10	2.1	1.7
30		60	60	9.5	2.0	1.6
31		59		8.9	2.0	
Mean		32	59	32	4.4	2.0
Runoff in acre-feet		1,278	3,481	1,987	268	116

TABLE A-21

DAILY MEAN DISCHARGE OF MIDDLE FORK FEATHER RIVER
NEAR PORTOLA

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1	70	1,170	175	60	4.2	0.1	
2	54	1,160	206	60	14	0.1	
3	39	1,140	184	62	12	0.1	
4	32	1,120	167	60	7.9	0.1	
5	36	1,110	148	51	5.8	0.1	
6	60	1,090	128	43	4.6	0.2	
7	97	1,070	110	40	3.7	0.1	
8	151	1,030	104	37	3.2	0.1	
9	203	1,130	94	33	2.7	0.2	
10	250	1,140	81	28	2.3	0.1	
11	299	1,060	71	26	1.9	0.1	
12	291	972	59	22	2.1	0.1	
13	171	951	46	21	2.0	0.1	
14	199	1,060	51	19	1.7	0.1	
15	180	1,050	57	18	1.3		
16	177	897	116	15	0.0		
17	172	799	174	13	1.0		
18	169	743	152	11	0.8		
19	211	664	134	9.3	0.7		
20	309	527	124	7.2	0.6		
21	342	519	117	6.6	0.4		
22	340	554	98	7.0	0.2		
23	290	538	75	6.9	0.3		
24	268	457	80	6.2	0.3		
25	341	366	72	5.9	0.2		
26	382	302	69	5.9	0.2		
27	478	301	76	5.4	0.3		
28	728	301	71	5.0	0.3		
29	996	232	67	4.4	0.2		
30	1,140	197	67	4.1	0.2		
31	1,170		65		0.2		
Mean	311	788	105	23.1	2.4	0.1	
Runoff in acre-feet	19,130	46,910	6,422	1,374	149	3	

TABLE A-22

DAILY MEAN DISCHARGE OF SMITHNECK CREEK
NEAR LOYALTON

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1	8.5	33	23	6.8	4.2	3.3	3.4
2	7.9	35	23	6.9	4.1	3.3	3.4
3	7.7	35	22	6.9	4.1	3.2	3.4
4	7.5	38	21	6.8	4.1	3.5	3.4
5	8.5	39	21	6.4	4.1	3.5	3.4
6	10	40	19	6.5	4.1	3.4	3.2
7	9.0	43	18	6.2	3.9	3.4	3.4
8	8.9	38	18	6.0	3.9	3.4	3.4
9	8.9	35	17	5.9	4.0	3.8	3.4
10	8.9	34	16	5.7	4.0	3.6	3.4
11	8.7	34	15	5.6	4.1	3.4	3.4
12	8.5	37	14	5.7	4.9	3.3	3.6
13	9.0	36	13	5.7	4.2	3.3	3.6
14	8.9	39	15	6.3	4.2	3.3	3.7
15	9.0	39	15	6.4	4.0	3.2	3.7
16	9.0	36	16	5.7	4.0	3.3	3.6
17	9.5	38	15	5.4	4.3	3.3	3.6
18	10	36	13	5.5	4.3	3.3	3.6
19	12	35	12	5.9	4.0	3.3	3.6
20	13	35	11	5.3	3.8	3.4	3.8
21	13	34	10	5.2	3.7	3.4	3.8
22	14	34	9.7	5.5	2.5	3.4	3.7
23	14	34	9.6	5.5	3.4	3.2	3.6
24	17	33	9.5	5.1	3.5	3.2	3.5
25	20	31	9.3	4.8	3.6	3.2	4.4
26	23	29	9.8	4.7	3.7	3.3	4.1
27	28	29	11	4.7	3.5	3.3	3.9
28	30	28	9.9	4.8	3.4	3.4	3.9
29	31	26	8.6	4.5	3.5	3.4	4.0
30	32	25	8.1	4.5	3.3	3.6	3.9
31	31		7.3		3.2	3.5	
Mean	14.1	34.6	14.2	5.7	3.9	3.4	3.6
Runoff in acre-feet	866	2,059	872	339	237	207	216

TABLE A-23

DAILY MEAN DISCHARGE OF MIDDLE FORK FEATHER RIVER
NEAR CLIO

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1	147	1,480	331	130	27	11	8.2
2	135	1,500	377	130	27	11	8.8
3	118	1,490	362	137	30	11	9.5
4	100	1,510	352	133	34	11	9.5
5	111	1,520	337	122	29	11	9.5
6	233	1,500	330	108	26	12	10
7	258	1,510	320	101	23	12	11
8	299	1,510	300	96	23	12	11
9	348	1,580	280	92	21	17	11
10	356	1,470	230	90	20	14	12
11	391	1,390	210	85	22	12	12
12	389	1,300	180	78	23	12	12
13	329	1,260	160	71	20	13	12
14	297	1,290	150	70	17	11	12
15	288	1,350	140	67	18	9.8	11
16	283	1,200	233	62	18	9.5	11
17	288	1,070	294	59	13	9.8	12
18	299	997	257	58	14	10	12
19	352	938	235	56	13	9.5	13
20	445	780	212	56	13	8.8	14
21	490	704	199	52	13	9.5	14
22	498	728	178	50	11	8.0	14
23	474	728	163	45	13	8.2	14
24	422	680	158	40	12	8.8	13
25	515	606	148	38	13	8.8	13
26	627	518	139	36	13	7.5	15
27	780	539	142	32	14	8.5	14
28	997	545	144	30	15	8.2	17
29	1,260	445	135	29	13	8.8	16
30	1,400	408	136	28	12	8.2	14
31	1,450		135		12	8.2	
Mean	464	1,085	225	72.7	18.5	10.3	12.2
Runoff in acre-feet	28,520	64,550	13,820	4,330	1,130	635	725

TABLE A-24

DAILY MEAN DISCHARGE OF MILLER CREEK
NEAR SATTLEY

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1	3.7	4.3	15	17	10	4.3	3.5
2	3.5	4.9	18	19	9.7	4.3	3.5
3	2.9	5.4	20	19	9.4	4.3	3.6
4	2.8	6.1	23	18	9.1	4.6	3.6
5	3.1	6.6	23	18	8.6	4.9	3.5
6	3.2	7.6	21	18	8.1	4.8	3.5
7	2.8	9.3	22	17	7.9	4.5	3.4
8	2.8	11	23	17	7.6	4.4	3.4
9	2.5	13	22	19	7.5	5.3	3.5
10	2.4	12	18	19	7.5	4.5	3.5
11	2.6	11	16	18	7.6	4.2	3.4
12	2.6	13	15	18	8.4	4.1	3.6
13	2.6	15	13	17	7.9	4.0	3.7
14	2.5	19	12	17	7.3	4.0	3.8
15	2.5	20	12	16	7.0	3.9	3.8
16	2.5	17	12	17	7.0	3.8	3.7
17	2.4	17	12	17	6.8	3.8	3.8
18	2.5	18	12	16	6.5	3.8	3.7
19	2.7	17	12	17	6.4	3.9	3.7
20	2.8	14	11	16	6.0	3.7	3.7
21	2.7	13	12	16	5.7	3.7	3.8
22	2.7	16	14	15	5.6	3.7	3.6
23	2.5	18	13	15	5.6	3.7	3.5
24	2.4	19	11	14	5.6	3.5	3.4
25	2.8	16	11	14	5.4	3.4	3.5
26	3.0	15	11	13	5.3	3.5	3.8
27	3.3	17	12	12	5.0	3.5	3.8
28	3.7	16	14	12	4.8	3.4	4.1
29	3.5	12	16	11	4.7	3.3	4.2
30	3.8	13	17	10	4.6	3.5	3.8
31	3.9		17		4.4	3.5	
Mean	2.9	13.2	15.5	16.1	6.9	4.0	3.6
Runoff in acre-feet	178	786	952	956	422	246	217

TABLE A-25

DAILY MEAN DISCHARGE OF NORTH FORK COTTONWOOD CREEK NEAR IGO

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	237	81	41	17	7.4	5.3
2	237	77	40	18	6.0	5.5
3	235	74	40	18	6.9	4.9
4	236	73	37	17	8.5	4.2
5	235	71	28	18	9.4	4.3
6	236	70	32	16	9.3	5.1
7	241	68	30	15	11	5.8
8	237	67	27	14	19	5.9
9	235	56	26	13	25	5.1
10	221	54	25	13	20	5.3
11	209	60	24	12	14	4.2
12	201	55	22	13	12	4.1
13	199	54	21	14	11	3.7
14	194	60	30	14	11	4.1
15	190	59	31	13	11	3.6
16	186	49	28	12	8.7	3.5
17	178	47	25	12	8.6	4.0
18	175	46	23	13	9.0	3.7
19	172	44	22	11	10	3.7
20	161	43	21	10	11	4.4
21	129	42	19	9.6	9.6	4.7
22	118	41	18	9.8	7.1	5.4
23	117	47	16	8.9	6.4	4.8
24	104	46	15	8.6	6.2	4.5
25	89	47	16	8.4	6.5	4.3
26	91	50	16	8.8	6.6	4.5
27	99	46	16	7.9	5.8	5.9
28	94	48	17	8.0	5.2	14
29	89	75	16	8.5	5.3	20
30	83	73	17	8.2	5.8	11
31		61		7.5	5.0	
Mean	174	57.5	24.6	12.2	9.6	5.7
Runoff in acre-feet	10,370	3,539	1,466	748	592	336

TABLE A-26

DAILY MEAN DISCHARGE OF NEW PINE CREEK
BELOW SCHROEDER'S

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1			45	24	8.0	2.8
2			45	24	7.7	2.8
3			45	23	8.3	2.3
4			43	21	7.7	2.1
5			42	20	7.4	2.3
6			40	19	7.0	2.5
7			40	19	7.0	2.5
8			40	15	7.0	2.5
9			42	15	6.4	2.3
10			42	15	6.2	2.3
11			42	15	5.8	2.3
12			42	15	5.8	2.0
13			42	15	5.5	
14			40	15	4.9	
15			42	15	4.9	
16			41	15	4.9	
17		15	41	15	4.7	
18		16	41	15	4.3	
19		17	40	13	4.3	
20		17	40	12	4.1	
21		17	40	11	4.1	
22		20	39	11	4.1	
23		25	38	11	4.1	
24		28	37	10	3.8	
25		31	35	10	3.5	
26		35	34	9.3	3.5	
27		40	32	9.3	3.5	
28		40	27	9.0	3.2	
29		43	26	9.0	3.2	
30		43	25	8.7	3.2	
31		45		8.0	3.0	
Mean		28.8	38.9	14.5	5.2	2.4
Runoff in acre-feet		855	2,310	890	319	57

TABLE A-27

DAILY MEAN DISCHARGE OF COTTONWOOD CREEK
BELOW LARKIN GARDEN DITCH

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1			12	2.5	0.2	0.1
2			12	2.2	0.2	0.1
3			12	2.0	0.2	0.1
4			12	2.2	0.2	0.1
5			11	2.2	0.2	0.1
6			10	1.7	0.2	0.1
7			9.5	1.4	0.2	
8			8.8	1.4	0.2	
9			8.8	1.4	0.3	
10		11	8.8	1.4	0.2	
11		10	9.2	1.4	0.2	
12		9.5	9.2	0.7	0.2	
13		9.2	9.2	0.7	0.2	
14		8.5	9.2	0.7	0.2	
15		7.9	8.5	0.7	0.2	
16		8.5	8.2	0.6	0.2	
17		8.2	8.2	0.6	0.2	
18		8.8	8.2	0.6	0.2	
19		9.2	8.5	0.4	0.2	
20		9.5	8.2	0.4	0.2	
21		11	7.9	0.4	0.2	
22		12	6.8	0.3	0.2	
23		12	6.8	0.3	0.2	
24		12	6.4	0.3	0.2	
25		12	6.1	0.3	0.1	
26		12	5.8	0.3	0.1	
27		12	5.5	0.3	0.1	
28		12	3.8	0.2	0.1	
29		7.9	3.3	0.3	0.1	
30		7.9	3.1	0.3	0.1	
31		8.5		0.2	0.1	
Mean		10.0	8.2	0.9	0.2	0.1
Runoff in acre-feet		436	487	55	12	1

TABLE A-28

DAILY MEAN DISCHARGE OF DAVIS CREEK
AT OLD FISH WHEEL

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1				8.9	5.8	4.3
2				9.1	5.6	4.3
3				9.3	5.6	4.3
4				9.1	5.8	4.3
5				9.1	5.8	4.4
6				8.9	5.6	4.3
7			16	8.5	5.4	4.3
8			16	8.3	5.4	4.3
9			16	8.2	5.6	4.3
10			16	8.0	5.4	4.3
11			16	8.0	5.2	4.3
12			15	8.0	5.2	
13			15	7.7	5.2	
14			15	7.5	4.9	
15			15	7.3	4.9	
16			14	7.2	4.7	
17			13	7.0	4.7	
18			13	7.0	4.7	
19			13	7.0	4.7	
20			13	7.0	4.7	
21			12	7.0	4.7	
22			12	6.8	4.7	
23			12	6.6	4.4	
24			12	6.4	4.3	
25			12	6.4	4.3	
26			10	6.2	4.4	
27			9.9	6.0	4.4	
28			9.7	6.0	4.4	
29			9.3	5.8	4.4	
30			9.1	5.8	4.3	
31				5.6	4.3	
Mean			13.0	7.4	5.0	4.3
Runoff in acre-feet			617	454	30	93

TABLE A-29

DAILY MEAN DISCHARGE OF LINVILLE CREEK
AT OLD POWER HOUSE

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1			2.4	2.2	2.1	1.9
2			2.4	2.2	2.0	1.9
3			2.4	2.2	2.0	1.9
4			2.4	2.2	2.1	1.9
5			2.4	2.2	2.1	2.0
6			2.4	2.2	2.1	2.0
7		2.3	2.4	2.2	2.0	2.0
8		2.3	2.4	2.2	2.0	2.0
9		2.3	2.3	2.2	2.0	2.0
10		2.3	2.3	2.2	2.0	2.0
11		2.3	2.3	2.2	2.0	2.0
12		2.3	2.3	2.2	2.0	2.0
13		2.3	2.3	2.2	2.0	2.0
14		2.3	2.3	2.2	2.0	2.0
15		2.4	2.3	2.2	2.0	
16		2.4	2.3	2.2	2.0	
17		2.4	2.3	2.1	2.0	
18		2.4	2.3	2.1	2.0	
19		2.4	2.2	2.0	2.0	
20		2.4	2.2	1.9	2.0	
21		2.4	2.2	1.9	2.0	
22		2.4	2.2	2.0	2.0	
23		2.4	2.2	2.1	2.0	
24		2.3	2.2	2.1	2.0	
25		2.7	2.2	2.1	1.9	
26		2.6	2.2	2.1	1.9	
27		2.5	2.2	2.1	1.9	
28		2.5	2.2	2.1	1.9	
29		2.5	2.2	2.1	1.9	
30		2.5	2.2	2.1	1.9	
31		2.4		2.1	1.9	
Mean		2.4	2.3	2.1	2.0	2.0
Runoff in acre-feet		118	136	128	123	55

TABLE A-30

DAILY MEAN DISCHARGE OF FRANKLIN CREEK
ABOVE DIVERSIONS

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1		8.8	5.7	2.1	2.2	2.0
2		8.5	5.6	2.2	2.2	2.0
3		6.8	5.4	2.3	2.3	2.0
4		6.3	5.1	2.3	2.3	2.0
5		6.3	4.9	2.3	2.3	2.1
6		6.3	4.5	2.2	2.2	2.1
7		6.1	4.2	2.1	2.1	2.1
8		5.7	4.1	2.0	2.1	2.1
9		5.3	3.9	2.2	2.2	2.1
10		4.9	3.9	2.3	2.2	2.1
11		4.6	3.8	2.3	2.1	2.1
12		4.5	3.8	2.3	2.1	2.1
13		4.5	3.8	2.3	2.0	2.1
14		4.3	3.8	2.3	2.1	2.1
15		4.1	3.7	2.3	2.1	2.0
16		4.2	3.7	2.3	2.1	2.0
17		3.9	3.5	2.3	2.1	2.0
18		4.3	3.4	2.4	2.1	2.0
19		4.5	3.3	2.4	2.0	
20		4.3	3.2	2.4	2.0	
21		5.0	3.2	2.4	2.0	
22		5.3	3.1	2.4	2.0	
23		5.7	2.9	2.4	2.0	
24		5.6	2.8	2.5	1.9	
25		6.4	2.6	2.5	1.9	
26	7.4	6.8	2.5	2.4	1.9	
27	8.5	6.8	2.3	2.4	2.1	
28	9.3	6.6	2.3	2.4	2.2	
29	9.7	6.6	2.3	2.4	2.1	
30	9.7	6.4	2.2	2.3	2.1	
31		6.0		2.2	2.1	
Mean	8.9	5.7	3.7	2.3	2.1	2.1
Runoff in acre-feet	88	350	219	141	128	74

TABLE A-31

DAILY MEAN DISCHARGE OF JOSEPH CREEK
BELOW COUCH CREEK

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1			7.8	2.3	1.2	1.1
2			7.4	2.1	1.2	1.1
3			7.2	2.3	1.2	1.1
4			6.5	2.3	1.2	1.1
5			5.8	2.3	1.2	
6			5.3	1.9	1.2	
7			5.2	1.7	1.2	
8		5.1	5.1	1.6	1.2	
9		5.1	5.3	1.5	1.2	
10		4.7	5.3	1.4	1.2	
11		4.4	5.3	1.4	1.2	
12		4.3	5.2	1.4	1.2	
13		4.4	5.1	1.4	1.1	
14		4.3	4.4	1.4	1.1	
15		3.9	4.4	1.4	1.1	
16		4.2	4.1	1.4	1.0	
17		3.7	4.1	1.4	1.1	
18		4.8	4.1	1.4	1.1	
19		5.0	4.1	1.4	1.1	
20		5.2	4.0	1.5	1.0	
21		7.1	3.8	1.5	1.1	
22		5.9	3.7	1.4	1.0	
23		8.0	3.5	1.4	1.0	
24		7.0	3.4	1.4	1.0	
25		11	3.1	1.2	1.0	
26		10	3.1	1.2	1.1	
27		8.8	3.1	1.2	1.1	
28		8.3	2.8	1.2	1.1	
29		8.0	2.7	1.2	1.1	
30		8.0	2.5	1.2	1.1	
31		8.0		1.2	1.1	
Mean		6.2	4.6	1.5	1.1	1.1
Runoff in acre-feet		294	273	92	67	8

TABLE A-32

DAILY MEAN DISCHARGE OF THOMS CREEK
AT CEDARVILLE-ALTURAS HIGHWAY

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1			28	2.8	1.4	
2			24	2.7	1.4	
3			20	2.7	1.4	
4			18	2.6	1.0	
5			17	2.5	0.9	
6			16	2.5	0.9	
7			15	2.4	1.3	
8			13	2.3	1.3	
9		16	11	2.1	1.1	
10		12	11	2.0	1.1	
11		9.7	10	2.0	1.1	
12		9.2	9.6	2.1	1.4	
13		8.8	8.0	2.1	1.4	
14		8.4	6.9	2.1	1.1	
15		7.9	6.8	2.2	0.9	
16		7.9	6.6	2.3	0.8	
17		7.4	6.1	2.2	0.7	
18		9.0	6.0	2.1	0.6	
19		9.9	5.7	2.0	0.3	
20		9.7	4.3	2.0	Dry	
21		15	3.6	1.9		
22		18	3.4	1.7		
23		31	3.4	1.6		
24		36	3.2	1.6		
25		45	3.1	1.6		
26		49	3.1	1.4		
27		47	2.9	1.4		
28		42	2.8	1.4		
29		40	2.8	1.4		
30		37	2.8	1.4		
31		32		1.4		
Mean		22.1	9.1	2.0	1.1	
Runoff in acre-feet		1,005	540	122	41	

TABLE A-33

DAILY MEAN DISCHARGE OF PARKER CREEK
AT FOGARTY RANCH

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1		31	48	4.2	1.9	0.7
2		32	44	4.2	0.7	0.6
3		32	41	2.5	0.3	0.6
4		29	38	1.4	1.4	0.6
5		28	34	1.4	0.9	0.5
6		28	31	2.3	0.8	0.1
7		29	28	2.5	0.7	0.4
8		28	26	2.3	0.6	0.7
9		26	24	2.3	1.1	0.5
10		25	24	2.5	1.4	0.6
11		23	24	3.0	0.3	0.8
12		21	20	5.2	0.4	0.9
13		24	19	6.4	0.4	1.1
14		31	17	4.5	0.7	0.8
15		26	16	2.6	0.9	0.8
16		25	14	2.6	0.6	0.8
17		22	13	2.6	0.6	0.6
18		34	11	2.5	0.3	0.5
19		41	10	2.5	0.3	
20		41	12	2.6	0.8	
21		53	10	2.2	0.2	
22		57	8.4	2.8	1.1	
23	38	85	7.4	2.6	1.2	
24	38	67	6.4	2.8	1.2	
25	35	81	5.5	2.6	1.1	
26	32	74	6.0	2.2	1.1	
27	33	67	6.9	1.4	0.8	
28	35	63	6.9	1.4	0.3	
29	32	67	5.2	1.6	0.7	
30	31	58	4.5	1.6	1.1	
31		51		1.2	0.6	
Mean	34.1	42.0	16.8	2.7	0.8	0.6
Runoff in acre-feet	538	2,578	997	165	49	21

TABLE A-34

DAILY MEAN DISCHARGE OF SHIELDS CREEK
BELOW PEPPERDINE RANCH

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1			8.7	0.8	2.6	2.6
2		4.1	7.8	0.9	2.6	2.6
3		3.9	6.3	1.5	2.5	2.6
4		2.9	6.5	1.8	2.1	2.6
5		3.8	8.4	2.2	1.0	2.6
6		5.4	7.6	2.8	0.9	1.9
7		7.6	6.7	2.2	0.9	1.6
8		5.8	5.8	2.2	0.9	1.6
9		5.2	5.6	1.5	1.2	2.2
10		4.8	5.0	1.0	0.9	2.2
11		4.4	4.6	2.6	0.8	2.1
12		3.9	4.6	2.5	0.7	1.8
13		5.6	5.9	2.5	0.7	1.3
14		4.3	6.5	3.1	1.9	0.9
15		2.5	6.3	3.6	1.9	1.0
16		3.6	5.9	2.9	1.8	0.8
17		3.8	5.8	2.3	1.8	0.5
18		6.1	4.6	1.8	1.8	0.8
19		7.6	4.3	1.5	2.1	
20		7.8	5.0	1.4	2.5	
21		15	4.4	1.3	2.6	
22		13	4.3	1.0	2.8	
23		21	4.4	1.0	2.8	
24		12	5.4	1.9	2.6	
25		19	4.1	1.2	2.6	
26		14	3.4	0.9	2.2	
27		11	2.9	1.2	2.1	
28		11	2.8	1.4	2.1	
29		14	1.2	1.4	2.3	
30		11	0.5	1.8	2.6	
31		9.6		1.8	2.6	
Mean		8.1	5.2	1.8	1.9	1.8
Runoff in acre-feet		481	308	110	116	64

TABLE A-35

DAILY MEAN DISCHARGE OF PARKER CREEK
ABOVE HIGHWAY 395 NEAR ALTURAS

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1		20	33	1.6	0.1	
2		19	30	1.5	0.1	
3		19	31	1.0	0.1	
4		19	25	0.7	0.1	
5		16	22	0.7	0.1	
6		18	19	0.5	0.1	
7		22	17	0.4	0.1	
8		30	9.3	0.4	0.1	
9		30	4.9	0.4	0.1	
10		29	5.1	0.4	0.1	
11		21	6.1	0.4	0.1	
12		22	16	0.4	0.1	
13		22	26	0.4	0.1	
14		30	21	0.4	0.1	
15		22	19	0.6	0.1	
16		21	20	0.7	0.1	
17		20	20	0.8	0.1	
18		25	12	0.8	0.1	
19		30	8.1	0.8	0.1	
20		35	8.5	0.8	0.1	
21		58	4.8	0.2	0.1	
22		67	6.1	0.2	0.1	
23		118	5.4	0.1	0.1	
24		67	4.8	0.1		
25		109	2.2	0.1		
26		102	1.3	0.1		
27		72	1.3	0.1		
28		60	1.5	0.1		
29		55	2.4	0.1		
30	20	44	1.7	0.1		
31		37		0.1		
Mean	20.2	40.5	12.7	0.5	0.1	
Runoff in acre-feet	40	2,486	754	30	4	

TABLE A-36

DAILY MEAN DISCHARGE OF NORTH FORK PIT RIVER
BELOW THOMS CREEK

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1		30	43	2.6	4.2	2.2
2		29	41	2.4	4.2	1.9
3		29	38	2.4	4.2	0.9
4		26	36	2.4	4.2	0.5
5		22	34	2.4	4.2	0.3
6		21	30	2.4	4.2	0.3
7		21	27	2.4	3.8	0.5
8		21	23	2.4	3.8	0.2
9		20	20	2.0	4.0	0.1
10		18	18	1.7	4.0	0.2
11		15	16	1.7	3.8	0.5
12		15	15	1.7	3.4	
13		14	14	1.7	3.2	
14		13	10	1.6	3.2	
15		12	9.9	1.6	3.1	
16		19	8.8	3.1	3.1	
17	50	14	7.1	4.7	2.9	
18	48	21	6.2	5.4	2.9	
19	47	31	5.9	5.2	2.9	
20	44	39	5.9	4.9	2.7	
21	38	39	5.4	5.2	2.6	
22	38	34	4.9	4.9	2.6	
23	35	64	4.7	4.4	2.6	
24	34	57	4.4	3.4	2.6	
25	34	75	3.8	4.4	2.4	
26	32	82	3.4	4.2	2.4	
27	35	74	3.1	4.2	2.4	
28	38	62	2.9	4.2	2.4	
29	33	60	2.7	4.4	2.4	
30	28	56	2.7	4.2	2.4	
31		50		4.2	2.4	
Mean	38.1	34.8	14.9	3.3	3.2	0.7
Runoff in acre-feet	1,055	2,136	885	202	196	15

TABLE A-37

DAILY MEAN DISCHARGE OF NORTH FORK PIT RIVER
NEAR ALTURAS

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	84	46	95	5.8	0.5	0.3
2	88	45	73	5.8	0.6	0.3
3	88	41	42	3.3	0.8	0.4
4	93	39	42	3.3	0.8	0.3
5	114	19	40	3.3	0.8	0.3
6	114	8.7	33	3.3	1.0	0.3
7	135	0.2	28	3.3	1.2	0.3
8	167	1.2	9.2	3.3	1.2	0.2
9	146	67	10	2.9	1.5	0.2
10	129	15	10	1.8	1.8	0.2
11	123	6.4	7.7	1.0	1.8	0.3
12	123	1.2	2.5	0.6	1.5	0.3
13	127	27	9.1	0.4	1.8	0.4
14	108	91	5.2	0.4	1.8	0.5
15	104	59	2.9	0.4	2.1	0.5
16	91	57	3.3	0.4	2.1	0.6
17	84	62	3.3	0.2	2.1	0.6
18	84	63	3.3	0.2	1.8	1.0
19	79	108	2.5	0.2	1.5	0.6
20	79	120	2.5	0.3	1.5	0.3
21	70	133	2.5	0.3	0.8	0.3
22	66	137	2.5	0.4	0.4	0.4
23	65	181	3.3	0.4	0.3	0.4
24	60	142	4.2	0.4	0.4	0.3
25	56	161	5.2	0.5	0.4	0.3
26	41	217	5.8	0.5	0.4	0.4
27	36	170	7.7	0.5	0.4	0.4
28	52	139	7.7	0.5	0.4	0.5
29	52	139	5.8	0.3	0.3	0.5
30	45	118	5.8	0.4	0.3	0.5
31		103		0.4	0.3	
Mean	90.1	81.2	15.8	1.5	1.1	0.4
Runoff in acre-feet	5,360	4,990	942	89	65	24

TABLE A-38

DAILY MEAN DISCHARGE OF RALPH EASTLICK DITCH

June through September 1962
(In second-feet)

Day	June	July	August	September
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13		0.6		
14		2.5		
15		2.4		
16		2.1		
17		1.9		
18		1.8		
19		1.7		
20		1.6		
21		1.7		
22		2.0		
23		1.9		
24		1.9		
25		1.8		
26		1.8		
27		1.5		
28		0.5		
29				
30				
31				
Mean		1.6		
Runoff in acre-feet		50		

TABLE A-39

DAILY MEAN DISCHARGE OF SHACKLEFORD DITCH

June through September 1962
(In second-feet)

Day	June	July	August	September
1			7.4	5.7
2			6.9	5.7
3			6.9	5.7
4			6.3	5.6
5			6.1	5.6
6			6.1	5.4
7			10	5.2
8			12	6.9
9			12	7.6
10			11	7.4
11			10	7.6
12			9.8	7.4
13		1.9	9.1	7.4
14		8.4	8.9	7.4
15		8.2	8.4	7.2
16		8.2	8.2	6.9
17		8.2	8.2	6.7
18		8.2	8.0	3.6
19		8.2	7.8	
20		7.6	7.6	
21		5.7	7.6	
22		6.3	7.4	
23		6.1	7.2	
24		6.1	7.2	
25		6.1	6.9	
26		5.9	6.7	
27		5.7	6.7	
28		6.7	6.7	
29		8.0	6.7	
30		7.8	6.5	
31		7.6	6.1	
Mean		6.9	8.0	6.4
Runoff in acre-feet		259	488	228

TABLE A-40

DAILY MEAN DISCHARGE OF HOWARD JONES DITCH

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13				0.8		
14				2.7		
15				2.4		
16				2.5		
17				2.8		
18				2.6		
19				2.3		
20				2.4		
21				2.6		
22				2.0		
23				2.1		
24				1.5		
25				1.3		
26				1.2		
27				1.2		
28				0.4		
29						
30						
31						
Mean				1.3		
Runoff in acre-feet				41		

TABLE A-41

DAILY MEAN DISCHARGE
OF CAMP DITCH

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1					2.3	2.4
2					2.0	2.2
3					1.9	1.9
4					1.9	1.9
5					1.9	1.9
6					1.9	1.9
7					3.0	1.9
8					2.4	1.9
9					2.2	1.9
10					2.9	1.8
11					2.7	1.9
12					3.0	1.8
13				0.6	3.7	1.8
14				1.6	3.4	1.7
15				1.5	3.2	1.7
16				1.7	2.9	1.6
17				2.1	3.1	1.6
18				1.9	3.1	0.9
19				1.8	3.0	
20				2.1	3.0	
21				3.2	3.0	
22				1.6	2.9	
23				1.8	2.8	
24				1.6	2.8	
25				1.5	2.7	
26				1.3	2.7	
27				1.2	2.7	
28				1.8	2.7	
29				4.6	2.5	
30				4.0	2.5	
31				2.5	2.4	
Mean				2.0	2.7	1.8
Runoff in acre-feet				76	166	65

TABLE A-42

DAILY MEAN DISCHARGE OF SHASTA RIVER
NEAR YREKA

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	210	107	107	12	15	27
2	225	107	88	11	12	33
3	203	96	83	11	10	36
4	200	94	78	20	11	38
5	193	101	91	29	14	35
6	148	99	107	35	26	28
7	135	91	101	25	28	24
8	129	91	88	19	26	25
9	129	86	69	24	40	24
10	121	112	94	34	54	33
11	112	160	81	23	75	49
12	88	176	81	19	62	57
13	86	154	54	12	62	64
14	74	160	49	19	59	73
15	56	170	49	17	54	86
16	67	173	28	15	38	75
17	67	154	34	15	29	82
18	49	141	34	13	29	77
19	42	141	40	11	38	69
20	54	121	34	11	57	71
21	52	129	21	12	46	69
22	47	118	23	14	26	52
23	52	135	26	30	24	68
24	56	186	28	37	18	80
25	45	186	22	35	18	82
26	42	160	18	43	18	82
27	40	160	26	49	18	69
28	45	118	25	43	18	88
29	88	141	20	29	19	144
30	99	138	14	24	13	147
31		124		17	15	
Mean	98.5	133	53.8	22.8	31.4	62.9
Runoff in acre-feet	5,860	8,190	3,200	1,400	1,930	3,740

TABLE A-43

DAILY MEAN DISCHARGE OF
BIG SPRINGS IRRIGATION DISTRICT FLUME

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1		21	0.0	28	28	29
2		21	17	9.2	28	29
3		21	27	0.0	9.2	29
4		22	28	0.0	0.0	29
5		22	28	19	19	29
6		22	27	28	28	29
7	14	22	27	28	28	30
8	17	16	27	29	28	30
9	17	15	17	29	28	30
10	17	8.6	28	29	28	30
11	17	0.0	28	22	28	30
12	17	0.0	28	29	28	24
13	14	0.0	28	29	28	21
14	18	0.0	28	29	28	13
15	17	0.0	28	29	28	0.0
16	17	18	28	29	9.4	0.0
17	17	25	28	29	0.0	0.0
18	17	25	28	29	0.0	0.0
19	17	25	28	29	0.0	19
20	17	25	28	29	20	30
21	17	25	28	29	29	30
22	17	25	27	29	29	30
23	18	25	28	29	29	
24	18	25	28	22	29	
25	18	18	28	28	29	
26	19	17	28	28	29	
27	20	9.4	28	28	29	
28	20	0.0	29	28	29	
29	20	0.0	29	28	29	
30	20	0.0	28	28	29	
31		0.0		28	29	
Mean	15.5	14.7	26.3	25.4	23.0	22.2
Runoff in acre-feet	837	911	1,578	1,574	1,426	976

TABLE A-44

DAILY MEAN DISCHARGE OF PARKS CREEK
ABOVE EDSON-FOULKE YREKA DITCH

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1		43	51	7.3	4.8	2.7
2		53	48	7.3	6.0	2.7
3		62	51	7.0	6.2	2.8
4		62	40	6.7	4.5	2.8
5		60	38	6.7	2.8	2.8
6	57	62	38	6.6	2.7	2.8
7	66	66	37	6.5	3.0	2.8
8	72	73	37	6.3	4.5	2.8
9	69	64	43	6.2	5.0	2.8
10	61	56	43	6.2	4.1	2.9
11	57	54	38	6.0	3.5	2.9
12	65	49	36	6.2	3.2	3.0
13	77	45	35	7.6	3.2	2.9
14	91	43	31	7.3	3.3	3.0
15	89	41	29	7.1	3.0	3.0
16	80	38	29	7.0	2.9	3.0
17	75	37	26	6.9	2.9	2.9
18	78	40	25	6.7	2.9	3.0
19	70	38	21	6.6	2.8	3.0
20	54	35	20	6.0	2.8	3.1
21	49	30	19	5.0	2.8	3.1
22	52	33	18	4.9	2.7	3.1
23	63	40	19	4.7	4.3	
24	68	34	19	4.0	5.6	
25	61	32	18	4.1	5.6	
26	54	31	15	4.3	5.6	
27	62	34	13	5.2	5.6	
28	52	38	12	5.7	5.6	
29	43	44	11	5.7	5.6	
30	40	51	8.0	4.4	4.8	
31		52		3.2	2.8	
Mean	64	46	28.9	6.0	4.0	2.9
Runoff in acre-feet	3,178	2,851	1,716	367	248	127

TABLE A-45

DAILY MEAN DISCHARGE OF SHASTA RIVER
AT EDGEWOOD

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	91	67	72	22	3.3	5.8
2	94	69	72	21	3.4	5.2
3	97	74	82	18	3.5	5.9
4	101	78	71	17	3.8	6.5
5	115	77	61	14	3.6	6.0
6	126	80	55	13	3.2	6.3
7	141	88	52	12	4.7	6.4
8	159	115	49	11	8.1	6.9
9	153	109	55	9.1	12	6.6
10	125	131	63	6.6	10	7.9
11	113	102	59	4.5	9.3	8.0
12	117	85	57	5.3	7.1	8.1
13	134	79	56	4.9	7.5	6.4
14	163	74	51	4.2	6.3	6.5
15	169	68	49	6.3	5.8	6.9
16	144	65	40	7.7	5.6	7.3
17	131	61	37	8.8	4.7	6.3
18	131	69	33	9.2	5.2	5.3
19	131	63	33	6.9	5.5	6.6
20	108	69	35	7.0	4.1	7.8
21	91	57	32	5.9	4.0	8.3
22	88	61	33	4.3	4.8	7.2
23	93	86	32	3.8	6.2	8.4
24	107	64	30	2.7	5.1	9.6
25	89	59	30	3.3	4.0	7.8
26	77	56	30	3.4	4.2	8.7
27	105	55	28	3.4	5.1	9.2
28	94	63	26	3.3	5.0	17
29	75	72	23	3.4	6.4	17
30	67	73	22	3.7	6.3	16
31		74		4.2	6.6	
Mean	114	75.6	45.6	8.1	5.6	8.1
Runoff in acre-feet	6,801	4,647	2,713	496	346	480

TABLE A-46

DAILY MEAN DISCHARGE OF SHASTA RIVER
AT MONTAGUE-GRENADA HIGHWAY BRIDGE

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1				13	12	31
2				15	13	35
3				21	15	35
4				37	20	36
5				37	31	26
6				35	36	27
7				29	25	27
8				31	29	26
9				39	39	34
10			67	35	65	52
11			61	25	61	59
12			56	21	54	66
13			39	28	55	73
14			38	28	54	76
15			33	21	39	72
16			33	25	23	75
17			33	22	25	76
18			34	20	31	66
19			18	20	39	61
20			21	19	52	51
21			18	20	31	56
22			28	36	25	
23			27	40	18	
24			20	41	21	
25			22	42	18	
26			25	49	19	
27			28	48	21	
28			26	37	22	
29			17	20	22	
30			14	17	21	
31				17	28	
Mean			31.3	28.6	31.1	50.5
Runoff in acre-feet			1,315	1,773	1,928	2,120

TABLE A-47

DAILY MEAN DISCHARGE OF
LITTLE SHASTA RIVER NEAR MONTAGUE

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	53	29	15	5.5	3.7	2.9
2	53	31	13	5.4	3.8	2.8
3	47	29	13	5.4	3.9	2.9
4	52	28	13	5.3	3.3	2.9
5	59	27	13	5.3	3.6	No
6	57	27	12	4.4	3.8	
7	66	27	11	4.7	4.5	r
8	72	28	11	4.8	4.6	e
9	59	27	10	4.5	4.6	c
10	45	30	10	4.4	4.1	o
11	42	30	9.8	4.6	3.7	r
12	46	26	9.4	5.2	3.4	d
13	49	25	9.2	4.5	3.4	:
14	52	26	8.9	4.5	3.2	2.9
15	50	24	8.6	4.5	3.1	2.8
16	44	23	8.9	4.5	3.3	2.9
17	41	22	8.8	4.2	3.5	2.9
18	38	22	8.2	4.4	3.6	3.6
19	33	21	7.0	4.3	3.6	3.4
20	29	20	7.1	4.3	3.4	3.8
21	28	20	7.1	4.4	3.3	3.8
22	30	20	6.9	3.7	3.0	3.6
23	30	28	6.8	3.8	3.5	3.6
24	30	21	6.7	4.0	3.4	3.7
25	27	20	6.4	3.9	3.6	4.0
26	26	19	6.6	3.7	3.3	3.8
27	36	18	6.1	3.7	3.2	6.2
28	32	17	5.8	3.1	3.3	5.3
29	27	18	5.7	4.2	2.8	4.8
30	25	16	5.7	3.9	2.8	
31		16		3.6	2.9	
Mean	42.6	23.7	9.0	4.4	3.5	---
Total acre-feet	2,535	1,458	537	271	217	---

TABLE A-48

DAILY MEAN DISCHARGE OF EDSON-FOULKE YREKA DITCH
AT SHASTA RIVER

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1		28	31	24	8.9	4.5
2		29	31	23	8.4	4.5
3		29	30	26	8.4	4.3
4		30	30	25	8.9	4.3
5		29	29	24	9.6	4.3
6	23	30	29	23	8.4	4.1
7	25	30	29	22	14	4.1
8	26	32	30	21	21	3.8
9	25	31	32	19	21	3.8
10	23	31	32	18	16	3.8
11	22	31	32	18	14	3.8
12	23	28	32	18	12	4.1
13	24	27	32	17	11	4.1
14	30	26	30	14	8.9	4.1
15	31	26	30	9.6	8.2	4.3
16	29	25	30	9.1	7.7	4.3
17	29	29	29	8.4	7.5	4.3
18	28	32	29	10	7.3	4.5
19	28	32	29	12	7.3	4.1
20	25	32	29	12	6.7	3.8
21	24	30	29	11	6.2	3.6
22	24	30	29	11	6.0	3.4
23	26	29	29	11	5.8	
24	29	27	29	16	5.6	
25	30	27	29	16	5.4	
26	30	26	30	13	5.2	
27	31	27	29	13	5.1	
28	30	29	27	12	5.1	
29	29	31	26	13	4.9	
30	27	32	25	12	4.9	
31		32		9.9	4.7	
Mean	27	29	29	15.8	8.9	4.1
Runoff in acre-feet	1,329	1,796	1,756	972	545	178

TABLE A-49

DAILY MEAN DISCHARGE OF EDSON-FOULKE YREKA DITCH
NORTH OF PARKS CREEK

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1		45	40	24	6.7	4.1
2		47	40	23	6.3	4.1
3		49	39	23	6.3	3.7
4		50	37	23	6.7	3.7
5		49	38	23	6.7	3.5
6	38	50	38	23	6.7	3.3
7	40	49	37	21	9.8	3.3
8	42	51	40	20	18	3.3
9	42	49	46	19	20	3.3
10	39	46	46	17	14	3.3
11	38	43	45	17	11	3.3
12	40	41	44	16	9.5	3.5
13	43	40	43	15	8.5	3.5
14	45	39	41	13	7.7	3.5
15	45	38	39	9.5	7.2	3.5
16	43	36	38	9.2	6.7	3.5
17	42	41	37	9.0	6.3	3.5
18	42	48	36	9.2	5.8	3.5
19	41	48	36	10	5.5	
20	37	47	38	9.8	5.5	
21	35	46	37	9.8	5.3	
22	40	48	37	9.2	5.2	
23	49	39	37	9.0	5.2	
24	49	35	37	12	4.7	
25	46	34	35	12	4.7	
26	44	33	34	9.2	4.5	
27	47	35	34	8.2	4.5	
28	44	37	32	8.0	4.3	
29	41	39	31	8.2	4.3	
30	41	40	27	8.0	4.1	
31		40		7.5	4.1	
Mean	42	43	37	14.0	7.3	3.5
Runoff in acre-feet	2,085	2,637	2,255	860	447	126

TABLE A-50

DAILY MEAN STORAGE IN DWINNELL RESERVOIR

October 1, 1961 to September 30, 1962 in acre-feet

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.
1	6,797	6,967	9,650	13,720	15,580	23,460	26,825	27,050	24,800	18,876	11,960	6,180
2	6,764	7,010	9,910	13,792	15,640	23,516	26,915	26,945	24,740	18,627	11,750	6,052
3	6,720	7,044	1,080	13,852	15,676	23,600	26,975	26,795	24,680	18,382	11,540	5,916
4	6,687	7,078	10,160	13,972	15,736	23,720	27,050	26,675	24,620	18,148	11,290	5,788
5	6,653	7,112	10,220	13,972	15,804	23,900	27,125	26,525	24,575	17,979	11,030	5,665
6	6,619	7,146	10,300	14,032	15,892	24,545	27,230	26,375	24,545	17,602	10,880	5,525
7	6,585	7,180	10,350	14,104	16,084	24,845	27,410	26,220	24,470	17,407	10,640	5,378
8	6,568	7,214	10,420	14,188	16,900	25,010	27,575	26,180	24,215	17,095	10,410	5,231
9	6,542	7,256	10,480	14,260	17,680	25,145	27,770	26,090	24,065	16,840	10,260	5,077
10	6,500	7,273	10,540	14,332	18,395	25,265	27,905	26,075	23,960	16,600	10,090	4,930
11	6,468	7,299	10,590	14,392	18,733	25,355	28,025	26,150	23,750	16,360	9,910	4,792
12	6,420	7,333	10,630	14,476	18,845	25,445	28,085	26,165	23,544	16,120	9,740	4,649
13	6,380	7,368	10,670	14,560	19,630	25,490	28,145	26,145	23,348	15,868	9,550	4,493
14	6,316	7,404	10,730	14,608	20,150	25,505	28,275	26,105	23,110	15,616	9,360	4,350
15	6,276	7,431	10,770	14,644	20,940	25,550	28,420	26,060	22,914	15,364	9,134	4,224
16	6,260	7,458	10,820	14,680	21,710	25,580	28,468	25,970	22,676	15,112	8,991	4,098
17	6,316	7,485	10,850	14,716	22,060	25,625	28,404	25,845	22,424	14,872	8,820	3,990
18	6,220	7,530	10,950	14,764	22,312	25,685	28,404	25,745	22,186	14,620	8,640	3,876
19	6,180	7,557	11,050	14,920	22,508	25,730	28,340	25,695	21,920	14,380	8,450	3,733
20	6,180	7,611	11,860	15,100	22,676	25,835	28,308	25,505	21,668	13,912	8,232	3,607
21	6,180	7,656	12,255	15,148	22,716	25,910	28,244	25,430	21,416	13,708	8,052	3,491
22	6,220	7,719	12,640	15,160	22,942	26,000	28,100	25,370	21,150	13,648	7,854	3,371
23	6,260	7,755	12,838	15,196	23,040	26,075	28,010	25,430	20,898	13,576	7,656	3,250
24	6,264	7,800	12,981	15,232	23,152	26,150	27,905	25,355	20,644	13,492	7,498	3,125
25	6,372	8,070	13,113	15,280	23,236	26,195	27,755	25,325	20,397	13,324	7,222	3,000
26	6,526	8,250	13,223	15,316	23,306	26,255	27,590	25,220	20,150	13,124	7,070	2,865
27	6,670	8,725	13,324	15,364	23,348	26,330	27,500	25,160	19,903	12,882	6,874	2,710
28	6,781	8,963	13,420	15,412	23,460	26,450	27,410	25,070	19,656	12,651	6,721	2,457
29	6,840	9,124	13,504	15,448		26,555	27,320	25,010	19,407	12,409	6,576	2,282
30	6,882	9,450	13,584	15,496		26,660	27,185	24,950	19,123	12,070	6,444	2,210
31	6,925		13,660	15,544		26,750		24,875			6,308	2,118

TABLE A-51

DAILY MEAN RELEASES
FROM DWINNELL RESERVOIR

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1		64	38	79	76	45
2		66	40	78	78	45
3		66	38	78	78	45
4		66	42	78	76	45
5		66	7.8	78	76	45
6		60	9.1	78	77	47
7		53	15	77	76	55
8		51	57	78	70	56
9		50	57	80	66	56
10		28	59	80	65	56
11		23	67	81	64	56
12	14	23	75	82	64	55
13	19	25	75	83	64	55
14	19	30	78	81	61	54
15	24	35	78	81	61	54
16	47	42	79	81	61	52
17	58	50	82	81	61	47
18	60	49	81	80	61	47
19	63	51	81	79	67	49
20	63	40	81	78	78	49
21	62	41	82	77	75	49
22	63	37	81	72	74	49
23	70	37	81	10	73	51
24	70	32	81	7.8	72	51
25	71	32	80	10	71	51
26	73	34	80	37	68	50
27	67	38	79	63	66	49
28	64	38	79	69	58	36
29	64	38	79	74	51	30
30	64	38	79	75	49	30
31		38		75	45	
Mean	54.5	43.3	64.7	69.7	67.2	48.6
Runoff in acre-feet	2,050	2,660	3,840	4,280	4,120	2,890

TABLE A-52

DAILY MEAN DISCHARGE
SHASTA RIVER WATER ASSOCIATION PUMPING PLANT

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	20	42	42	42	42	42
2	34	42	42	42	42	42
3	42	42	42	42	42	42
4	42	42	42	42	42	42
5	42	42	42	41	42	42
6	42	42	42	42	42	42
7	42	42	42	42	42	42
8	42	42	42	42	42	42
9	42	42	39	42	42	42
10	42	42	35	27	42	42
11	42	42	42	39	42	42
12	37	42	42	41	42	42
13	37	42	42	42	42	42
14	37	42	42	42	42	42
15	37	42	42	42	42	42
16	42	42	42	42	42	42
17	42	42	42	42	40	42
18	42	40	42	42	42	42
19	42	42	42	42	25	42
20	42	42	42	42	41	42
21	42	40	42	42	42	24
22	42	42	42	42	42	42
23	42	30	42	40	42	42
24	42	17	42	42	42	42
25	42	16	42	42	42	42
26	42	20	42	38	42	42
27	42	27	42	31	42	40
28	42	42	42	42	42	27
29	42	42	42	40	42	
30	42	42	42	42	42	
31		42		39	42	
Mean	40.3	38.6	41.7	40.6	41.4	40.8
Runoff in acre-feet	2,400	2,370	2,480	2,490	2,540	2,260

TABLE A-53

DAILY MEAN DISCHARGE OF GRENADA
IRRIGATION DISTRICT PUMPING PLANT

(During 1962 in cfs)

Date	April	May	June	July	August	September
1	N	0	29	34	34	24
2	o	0	24	34	34	24
3		0	24	34	34	32
4	f	0	12	34	34	40
5	l	20	0	34	34	40
	o					
6	w	40	0	34	34	40
7	40	40	0	34	34	32
8	40	40	0	34	34	24
9	40	40	0	34	17	12
10	40	40	0	34	0	0
11	40	37	0	34	0	0
12	40	34	17	34	0	0
13	40	34	34	34	0	0
14	40	17	34	34	11	12
15	40	0	34	34	22	24
16	40	0	34	34	22	24
17	40	0	34	34	22	24
18	40	0	34	34	22	24
19	40	17	34	34	22	24
20	40	34	34	34	22	24
21	40	34	34	17	22	12
22	40	34	34	0	22	:
23	40	34	34	0	22	N
24	40	34	34	0	22	o
25	40	34	34	0	22	
						f
26	40	34	34	0	22	l
27	32	34	34	0	22	o
28	24	34	34	17	22	w
29	24	34	34	34	22	:
30	0	34	34	34	23	:
31		34		34	24	:
Total acre-feet	1,742	1,519	1,422	1,616	1,340	863

Season Total - 8,502

TABLE A-54

DAILY MEAN DISCHARGE OF SOUTH FORK PIT RIVER
NEAR LIKELY

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	9.7	79	148	40	183	65
2	8.3	87	127	36	169	56
3	7.3	104	125	34	157	56
4	9.0	116	115	28	116	34
5	12	125	98	28	85	24
6	16	133	80	30	86	34
7	20	129	72	30	89	34
8	27	123	65	29	96	32
9	27	115	67	38	99	23
10	21	104	79	54	99	29
11	17	89	83	54	94	35
12	22	83	98	55	93	35
13	34	78	106	71	94	35
14	44	78	133	86	74	34
15	60	69	127	85	85	34
16	59	64	122	78	104	34
17	68	56	116	57	100	34
18	69	90	115	63	99	33
19	79	94	113	77	99	35
20	63	106	111	82	99	36
21	48	123	108	82	99	36
22	50	105	78	80	98	36
23	67	142	44	80	98	36
24	92	146	40	80	98	35
25	98	154	38	104	96	35
26	78	163	35	154	96	35
27	78	118	35	172	94	38
28	87	150	32	172	94	40
29	87	285	29	157	80	32
30	71	232	33	172	73	26
31		180		187	73	
Mean	47.6	120	85.7	80.5	101	36.0
Runoff in acre-feet	2,830	7,380	5,100	4,950	6,190	2,140

TABLE A-55

DAILY MEAN DISCHARGE OF SOUTH FORK PIT RIVER
NEAR JESS VALLEY

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	6.0	77	143	28	11	5.4
2	5.1	86	127	25	11	5.8
3	4.4	101	124	22	11	6.0
4	6.1	116	114	18	11	5.7
5	9.1	125	98	17	11	5.6
6	12	131	81	17	11	5.4
7	17	124	70	18	10	5.1
8	21	118	61	17	11	4.7
9	20	108	67	16	14	4.7
10	15	95	78	18	0.1	5.5
11	12	84	78	19	8.0	5.7
12	17	80	81	19	9.8	5.6
13	28	77	81	20	10	5.5
14	39	76	81	19	8.9	5.3
15	56	66	76	19	8.6	5.5
16	57	61	72	17	8.1	5.8
17	67	50	67	18	8.1	5.3
18	71	92	65	18	7.0	5.3
19	78	94	62	18	6.9	6.6
20	57	108	62	17	7.2	7.0
21	42	120	57	17	6.7	7.2
22	49	105	50	16	6.8	7.0
23	69	141	43	15	6.4	7.0
24	92	144	39	16	6.5	7.0
25	93	148	36	17	6.4	6.8
26	75	151	35	16	7.0	7.5
27	76	118	34	14	6.6	8.9
28	88	140	31	13	6.6	10
29	86	260	28	13	6.7	12
30	68	214	29	13	6.6	11
31		171		13	5.9	
Mean	44.5	116	69.0	17.5	8.3	6.5
Runoff in acre-feet	2,649	7,103	4,106	1,077	508	389

TABLE A-56

DAILY MEAN DISCHARGE OF PINE CREEK
NEAR ALTURAS

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	16	24	46	30	12	10
2	17	26	49	29	12	9.8
3	16	29	53	27	12	9.8
4	18	32	55	27	14	10
5	19	30	53	25	14	11
6	20	30	50	24	14	10
7	22	29	48	24	14	7.0
8	22	34	45	23	13	4.4
9	22	36	45	22	15	8.6
10	20	36	43	22	13	9.2
11	15	36	40	21	13	9.6
12	10	37	40	21	12	9.0
13	20	37	43	21	12	8.7
14	22	36	45	20	11	8.0
15	23	33	45	20	11	8.0
16	24	31	43	19	10	9.0
17	25	29	41	19	9.9	8.2
18	24	33	38	18	10	8.1
19	23	46	38	17	10	7.6
20	21	58	38	16	9.6	8.8
21	19	62	38	16	9.2	8.7
22	21	44	38	16	9.8	9.1
23	24	64	37	15	11	8.6
24	25	45	37	15	11	8.7
25	24	56	35	13	11	8.2
26	22	49	35	13	10	8.5
27	23	41	35	13	11	9.4
28	25	42	34	13	11	11
29	24	66	33	14	11	11
30	23	49	32	13	11	10
31		45		13	11	
Mean	21.0	40.2	41.7	19.3	11.6	8.9
Runoff in acre-feet	1,248	2,469	2,483	1,188	711	532

TABLE A-57

DAILY MEAN DISCHARGE OF BIDWELL CREEK
NEAR FORT BIDWELL

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1	4.0	32	43	50	17	5.1	3.1
2	4.3	36	48	52	17	4.7	2.8
3	4.3	37	53	53	16	4.8	2.8
4	4.3	41	58	51	15	5.6	2.9
5	4.3	46	60	47	15	5.5	2.7
6	4.5	49	59	44	14	4.8	2.6
7	4.5	62	62	44	13	4.6	2.4
8	4.8	57	64	45	12	4.6	2.6
9	4.9	51	62	47	12	5.5	2.8
10	4.7	47	60	49	12	4.9	2.7
11	4.7	46	56	48	12	4.5	3.0
12	4.9	51	53	49	12	4.1	3.0
13	4.7	55	52	47	11	4.1	2.8
14	4.6	61	47	44	11	4.0	2.8
15	5.1	64	44	40	10	3.7	2.7
16	5.9	60	41	38	10	3.6	2.6
17	6.1	58	38	37	9.7	3.6	2.6
18	6.7	55	41	35	9.4	3.6	2.4
19	8.3	56	42	35	8.6	3.8	2.4
20	9.4	54	38	34	8.1	3.7	2.5
21	8.4	50	39	34	7.4	3.8	2.6
22	7.9	51	41	32	7.0	3.7	2.7
23	7.0	52	42	29	6.7	3.5	2.5
24	6.9	55	42	28	6.7	3.3	2.4
25	9.3	54	43	25	6.6	3.1	2.4
26	16	52	44	24	6.2	3.0	2.6
27	27	52	43	22	5.9	3.2	3.1
28	27	50	45	20	5.6	3.2	5.5
29	22	44	46	19	5.4	3.5	5.5
30	22	41	48	18	5.8	3.3	3.3
31	27		50		5.3	3.3	
Mean	9.2	50.6	48.5	38.0	10.1	4.1	2.9
Runoff in acre-feet	566	3,013	2,983	2,261	622	249	172

TABLE A-58

DAILY MEAN DISCHARGE OF
MILL CREEK

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1		15	19	19	6.7	2.4	1.5
2		14	20	20	6.4	2.2	1.5
3		16	21	20	6.2	2.0	1.6
4		21	22	17	6.0	2.4	1.6
5		29	22	16	5.8	2.3	1.6
6		33	24	15	5.6	2.3	1.6
7		30	24	15	5.4	2.2	1.6
8		26	23	15	5.1	2.2	1.6
9		22	21	15	4.9	2.4	1.6
10		19	21	16	4.5	2.4	1.6
11		18	20	16	4.5	2.3	1.6
12		20	20	16	4.3	2.2	1.6
13		20	19	17	4.2	2.2	1.6
14		19	17	16	4.0	2.0	1.6
15		19	14	15	4.0	2.0	1.5
16		19	13	15	3.7	2.4	1.5
17		21	12	14	3.7	2.2	1.5
18		21	12	13	3.6	2.0	1.5
19		22	13	13	3.4	2.0	1.5
20		16	14	12	3.4	1.9	1.5
21		17	13	12	3.3	1.8	1.6
22		17	13	11	3.1	1.6	1.7
23		17	15	10	3.1	1.5	1.7
24		18	16	9.5	3.0	1.5	1.8
25		19	17	9.2	2.9	1.5	1.8
26		17	18	8.8	2.7	1.5	1.8
27		20	18	8.3	2.6	1.5	2.0
28		23	18	7.7	2.4	1.5	2.4
29		19	19	7.3	2.3	1.5	2.6
30		17	19	6.7	2.2	1.5	2.6
31			19		2.2	1.5	
Mean		20.1	17.9	13.5	4.0	2.0	1.7
Runoff in acre-feet		1,196	1,101	804	248	121	101

TABLE A-59

DAILY MEAN DISCHARGE OF
SOLDIER CREEK

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1		12	17	15	3.1	2.0	1.2
2		13	22	13	3.0	1.9	1.1
3		17	30	11	2.9	1.9	1.1
4		19	29	10	2.8	1.8	1.1
5		31	24	9.0	2.8	1.8	1.1
6		34	23	8.5	2.7	1.8	1.1
7		42	24	8.0	2.6	1.7	1.1
8		36	22	7.5	2.5	1.7	1.2
9		29	20	7.2	2.4	2.2	1.2
10		21	16	7.1	2.4	2.1	1.3
11		19	13	7.0	2.5	1.8	1.3
12		22	12	7.0	2.5	1.6	1.3
13		23	10	6.5	2.6	1.6	1.3
14		29	8.5	6.3	2.5	1.6	1.3
15		24	8.0	6.0	2.5	1.6	1.3
16		19	8.0	5.8	2.5	1.5	1.2
17		24	9.0	5.7	2.4	1.5	1.2
18		26	12	5.5	2.3	1.5	1.3
19	5.5	23	11	5.5	2.3	1.5	1.3
20	5.0	16	10	5.3	2.2	1.7	1.3
21	5.5	15	16	5.0	2.2	1.6	1.3
22	4.5	21	16	4.8	2.1	1.5	1.3
23	5.5	24	14	4.5	2.1	1.4	1.3
24	7.0	26	14	4.3	2.1	1.4	1.3
25	9.0	20	17	4.1	2.1	1.4	1.3
26	9.5	18	17	4.0	2.0	1.3	1.5
27	11	26	17	3.8	2.0	1.3	1.9
28	10	22	16	3.6	2.0	1.3	2.0
29	9.0	15	18	3.3	2.0	1.3	2.3
30	10	15	16	3.2	2.0	1.3	2.3
31	12		14		2.0	1.2	
Mean	8.0	22.7	16.3	6.6	2.4	1.6	1.4
Runoff in acre-feet	205	1,348	997	391	147	99	81

TABLE A-60

DAILY MEAN DISCHARGE OF
PINE CREEK

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1		10	9.5	3.0			
2		11	12	2.6			
3		12	11	2.5			
4		17	9.5	2.1			
5		22	8.5	1.8			
6		25	8.5	1.6			
7		32	7.5	1.4			
8		28	7.0	1.3			
9		22	6.3	1.2			
10		18	5.4	1.0			
11		18	4.5	0.8			
12		19	4.2	0.6			
13		16	4.1	0.5			
14		22	3.8	0.5			
15		24	3.2	0.4			
16		16	3.3	0.4			
17		17	3.2	0.3			
18		17	3.5	0.3			
19		16	4.5	0.3			
20	3.0	12	4.2	0.2			
21	3.5	10	6.1	0.2			
22	3.5	12	5.0	0.1			
23	3.0	10	4.5	0.1			
24	4.5	14	4.0	0.1			
25	7.5	11	6.1	0.1			
26	9.0	11	6.0				
27	8.0	14	4.5				
28	9.0	11	3.5				
29	8.5	9.0	3.7				
30	8.0	8.0	3.6				
31	8.5		3.3				
Mean	6.3	16.1	5.6	0.8			
Runoff in acre-feet	150	958	345	46			

TABLE A-61

DAILY MEAN DISCHARGE OF CEDAR CREEK
AT CEDARVILLE

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1	1.4	6.8	14	8.1	1.5	0.3	0.1
2	0.6	7.9	13	7.1	1.4	0.3	0.1
3	1.0	9.4	13	7.6	1.3	0.3	0.1
4	1.2	15	11	7.0	1.2	0.3	0.1
5	1.2	21	11	6.7	1.2	0.2	0.1
6	1.7	19	11	6.0	1.1	0.2	0.1
7	1.7	12	11	5.4	1.0	0.2	0.1
8	2.0	16	10	5.3	0.9	0.2	0.1
9	2.0	18	10	4.5	0.8	0.2	0.1
10	2.1	25	9.1	5.3	0.8	0.2	0.1
11	2.0	27	9.1	5.3	0.8	0.2	0.1
12	2.2	26	8.4	4.9	0.6	0.2	0.1
13	2.4	24	8.2	4.4	0.6	0.2	0.1
14	2.5	24	8.1	4.2	0.6	0.2	0.1
15	3.2	22	7.2	4.1	0.6	0.2	0.1
16	3.1	23	7.4	4.1	0.6	0.2	0.1
17	3.6	21	6.8	3.3	0.6	0.2	0.0
18	4.3	23	8.3	2.9	0.6	0.1	0.0
19	4.5	21	8.9	2.7	0.6	0.1	0.0
20	5.4	21	8.3	2.7	0.6	0.1	0.0
21	6.7	19	9.2	2.7	0.5	0.1	0.0
22	7.2	19	9.7	2.6	0.5	0.2	0.0
23	8.2	18	10	2.6	0.5	0.1	0.0
24	8.8	18	10	2.2	0.5	0.1	0.0
25	8.8	18	10	2.1	0.4	0.1	0.0
26	8.5	17	11	2.2	0.3	0.2	0.0
27	4.7	17	11	2.2	0.3	0.1	0.0
28	4.6	15	11	2.1	0.3	0.1	0.0
29	5.9	15	12	2.0	0.3	0.1	0.1
30	4.5	14	11	1.7	0.3	0.1	0.1
31	5.3		9.7		0.3	0.1	
Mean	3.9	18.4	9.9	4.1	0.7	0.2	0.1
Runoff in acre-feet	241	1,095	612	246	43	11	4

TABLE A-62

DAILY MEAN DISCHARGE
OF OWL CREEK*

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1		9.0	20	55	19	3.6	1.7
2		14	26	54	17	3.5	1.6
3		16	31	46	15	3.4	1.6
4		17	35	41	14	3.6	1.6
5		16	35	40	13	3.5	1.6
6		19	33	39	13	3.4	1.6
7		24	37	35	12	3.1	1.6
8		18	37	42	11	2.9	1.6
9		14	32	47	11	3.5	1.6
10		10	29	48	10	3.4	1.5
11		11	25	48	10	3.1	1.5
12		11	24	48	9.5	2.6	1.5
13		18	22	46	8.8	2.4	1.5
14		28	20	41	8.0	2.4	1.5
15		25	19	37	7.5	2.3	1.5
16		22	19	37	6.8	2.3	1.5
17		23	21	38	6.7	2.2	1.5
18		21	21	39	6.5	2.2	1.5
19		23	21	40	6.5	2.2	1.5
20		22	19	38	6.2	2.1	1.6
21		21	19	38	5.9	2.1	1.6
22		20	19	36	5.7	1.9	1.6
23		22	18	34	5.5	1.9	1.6
24		21	20	32	5.4	1.8	1.6
25		20	20	31	5.1	1.7	1.6
26		19	19	29	4.7	1.7	1.6
27		24	20	25	4.3	1.7	1.9
28		20	31	23	4.1	1.7	2.0
29		18	51	21	4.0	1.7	2.3
30		20	52	20	3.9	1.7	2.2
31			54		3.7	1.7	
Mean		18.9	27.4	38.3	8.5	2.5	1.6
Runoff in acre-feet		1,121	1,681	2,273	523	153	97

* Includes flow in Allen-Arreche Ditch.

TABLE A-63

DAILY MEAN DISCHARGE OF
RADER CREEK

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1		5.1	12	26	11	3.1	1.4
2		5.4	17	23	11	3.0	1.3
3		6.3	21	22	10	3.3	1.3
4		6.7	23	21	10	3.1	1.3
5		7.1	21	23	9.5	2.9	1.3
6		7.8	21	22	9.1	2.8	1.3
7		7.3	19	23	8.7	2.8	1.3
8		6.5	19	24	8.1	2.6	1.3
9		7.3	16	26	7.6	3.3	1.3
10		6.8	15	27	7.3	3.1	1.3
11		8.5	14	27	7.1	2.7	1.3
12		8.2	12	25	6.7	2.3	1.3
13		8.8	11	23	6.2	2.1	1.3
14		9.0	11	22	5.8	2.1	1.2
15		10	11	20	5.5	1.9	1.2
16		10	10	20	5.0	1.9	1.2
17		11	10	21	4.7	1.8	1.2
18		11	10	21	4.5	1.8	1.2
19		11	10	21	4.5	1.7	1.2
20		12	9.7	20	4.3	1.7	1.2
21		11	14	20	4.0	1.7	1.3
22		13	14	19	4.2	1.7	1.3
23		14	14	18	4.2	1.6	1.3
24		15	13	18	4.0	1.6	1.3
25		15	14	17	3.9	1.6	1.4
26		13	14	16	3.7	1.5	1.4
27		12	14	14	3.7	1.5	1.4
28		10	17	13	3.6	1.5	1.6
29		10	22	12	3.4	1.4	1.6
30		9.6	25	12	3.3	1.4	1.5
31			27		3.3	1.4	
Mean		9.6	15.5	20.5	6.1	2.2	1.3
Runoff in acre-feet		570	952	1,220	372	133	79

TABLE A-64

DAILY MEAN DISCHARGE OF EAGLE CREEK
AT EAGLEVILLE

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1	1.8	5.1	8.4	29	17	3.0	2.0
2	1.8	5.3	13	31	16	2.9	2.0
3	1.8	5.8	18	34	15	2.8	2.0
4	1.8	6.2	22	30	14	2.9	2.0
5	1.8	6.6	22	26	13	2.8	2.0
6	1.9	8.0	23	23	13	2.8	2.1
7	1.9	9.4	24	24	12	2.7	2.0
8	1.8	9.1	26	27	11	2.5	2.1
9	1.8	9.1	22	33	10	2.7	2.1
10	1.8	7.7	18	37	9.5	2.8	2.1
11	1.8	8.2	15	37	8.8	2.9	2.1
12	1.8	11	14	36	8.1	2.9	2.1
13	1.8	11	12	37	7.6	2.7	2.1
14	1.8	12	9.4	36	6.9	2.5	2.1
15	1.8	15	8.0	33	6.4	2.6	2.1
16	2.0	13	7.1	31	6.1	2.5	2.1
17	2.2	12	6.9	31	5.4	2.5	2.1
18	2.3	13	7.7	32	4.8	2.5	1.9
19	2.4	15	7.3	30	4.4	2.5	1.9
20	2.5	12	7.0	29	4.0	2.5	2.0
21	2.7	10	6.6	30	3.8	2.4	1.9
22	2.8	11	7.3	30	3.6	2.3	1.8
23	3.1	13	9.6	30	3.3	1.9	1.8
24	3.3	15	8.0	29	3.2	2.0	1.8
25	3.5	13	7.8	29	3.0	2.0	1.9
26	3.6	10	7.6	27	3.1	1.9	4.6
27	3.8	11	7.8	25	3.0	2.0	3.0
28	4.0	8.5	15	22	2.8	2.1	4.3
29	4.4	7.5	33	20	2.8	2.1	2.9
30	4.6	7.3	30	18	2.9	2.1	2.2
31	4.9		30		3.1	2.1	
Mean	2.6	10.0	14.6	29.5	7.3	2.5	2.2
Runoff in acre-feet	157	597	900	1,757	451	153	133

TABLE A-65

DAILY MEAN DISCHARGE OF
EMERSON CREEK

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1		8.4	14	17	5.9	2.6	2.3
2		9.6	15	19	5.7	2.6	2.3
3		9.6	15	18	5.5	2.5	2.3
4		10	18	16	5.3	2.5	2.3
5		10	19	15	5.0	2.5	2.3
6		11	22	14	4.9	2.4	2.3
7		11	21	13	4.7	2.3	2.3
8		10	19	13	4.5	2.3	2.3
9		9.6	17	13	4.4	3.5	2.3
10		10	15	13	4.4	3.1	2.3
11		12	15	13	4.3	2.7	2.2
12		12	14	13	4.2	2.6	2.2
13		14	14	13	4.2	2.5	2.2
14		16	13	12	4.1	2.5	2.2
15		16	13	12	4.0	2.5	2.2
16		16	12	12	3.8	2.5	2.2
17		15	12	11	3.7	2.4	2.2
18		15	12	10	3.6	2.4	2.1
19		16	13	9.6	3.4	2.4	2.1
20		15	12	9.2	3.2	2.6	2.1
21		15	12	8.8	3.1	2.5	2.1
22		16	12	8.2	3.0	2.5	2.1
23		16	13	7.6	3.0	2.5	2.0
24		14	11	7.0	3.0	2.5	2.0
25		15	12	6.5	2.9	2.4	2.0
26		14	12	6.4	2.9	2.4	2.0
27		19	11	6.4	2.8	2.4	2.3
28		18	16	6.3	2.7	2.4	2.3
29		14	16	6.3	2.7	2.3	2.6
30		13	15	6.1	2.7	2.3	2.5
31			16		2.6	2.3	
Mean		13.3	14.5	11.2	3.9	2.5	2.2
Runoff in acre-feet		792	893	663	238	154	132

TABLE A-66

COMBINED DAILY MEAN DISCHARGE
OF NORTH DEEP CREEK AND SOUTH DEEP CREEK

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1		12	17	13	2.9	0.8	0.4
2		14	21	11	2.7	0.8	0.4
3		16	23	10	2.5	1.0	0.4
4		21	21	10	2.2	1.0	0.4
5		27	20	9.5	2.2	0.9	0.4
6		29	20	9.0	2.1	0.9	0.4
7		30	18	8.8	2.0	0.9	0.4
8		25	17	8.6	1.8	1.0	0.4
9		19	16	8.2	1.7	1.8	0.4
10		14	15	7.9	1.7	1.8	0.4
11		14	15	7.4	1.6	1.5	0.5
12		17	14	7.0	1.6	1.5	0.5
13		18	13	6.5	1.6	1.3	0.5
14		24	13	5.9	1.5	1.1	0.5
15		20	12	5.3	1.5	0.8	0.5
16		19	11	4.8	1.5	0.6	0.4
17		16	9.5	4.5	1.3	0.6	0.4
18		15	12	4.3	1.3	0.5	0.4
19		13	11	3.9	1.3	0.5	0.4
20		11	11	3.8	1.2	0.5	0.6
21		10	14	3.8	1.1	0.5	0.6
22		12	13	3.8	1.1	0.5	0.6
23		11	13	3.7	1.1	0.5	0.6
24		14	12	3.5	1.0	0.5	0.6
25		14	14	3.3	1.0	0.5	0.6
26		13	13	3.2	0.9	0.4	0.6
27		17	13	3.1	0.9	0.4	0.6
28		16	15	3.0	0.9	0.4	0.7
29		14	15	3.0	0.8	0.5	0.9
30		14	14	2.9	0.8	0.5	0.9
31			13		0.8	0.5	
Mean		17.0	14.8	6.1	1.5	0.8	0.5
Runoff in acre-feet		1,008	907	362	92	50	31

TABLE A-67

DAILY MEAN DISCHARGE OF
SUSAN RIVER AT SUSANVILLE

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	219	156	68	128	4.8	2.0
2	225	167	67	128	4.3	2.0
3	245	189	64	129	4.1	2.1
4	273	201	57	134	3.9	2.1
5	288	199	54	139	4.1	2.3
6	301	189	50	145	3.9	2.3
7	321	179	47	144	3.6	2.3
8	350	175	43	139	3.6	2.3
9	342	160	41	134	4.3	2.4
10	280	139	40	129	4.5	2.6
11	258	123	43	126	4.4	2.7
12	288	111	43	120	4.1	2.7
13	332	101	41	117	3.9	2.7
14	388	95	43	114	3.9	2.7
15	412	89	38	111	3.9	2.7
16	362	93	34	109	3.6	2.8
17	321	82	36	111	3.4	2.8
18	300	79	27	108	2.7	2.8
19	290	78	25	107	2.0	3.0
20	238	72	23	105	2.0	3.1
21	211	65	21	105	2.3	3.4
22	219	65	100	105	2.6	3.4
23	240	66	134	97	2.7	3.4
24	260	62	134	70	2.7	3.6
25	240	69	123	22	2.8	3.8
26	201	89	114	13	2.8	3.9
27	217	76	111	8.4	2.7	4.1
28	242	71	109	6.7	2.6	4.8
29	183	74	112	6.5	2.6	6.7
30	158	71	128	6.1	2.7	5.2
31		69		5.2	2.4	
Mean	273	111	65.7	94.3	3.35	3.09
Runoff in acre-feet	16,270	6,850	3,910	5,800	206	184

TABLE A-68

DAILY MEAN DISCHARGE OF GOLD RUN CREEK
NEAR SUSANVILLE

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1	1.1	4.9	8.5	26	3.3	0.7	0.2
2	1.0	6.1	14	26	3.0	0.6	0.2
3	1.0	6.7	22	23	3.0	0.6	0.2
4	1.0	8.1	30	20	2.8	0.7	0.2
5	1.4	9.0	29	18	2.4	0.8	0.2
6	3.4	9.3	28	17	2.3	0.7	0.2
7	2.3	10	27	15	2.1	0.6	0.2
8	2.5	14	30	11	2.0	0.6	0.2
9	2.5	14	28	11	2.0	0.9	0.2
10	1.8	9.5	25	11	1.8	0.8	0.2
11	1.5	8.3	22	10	1.9	0.6	0.2
12	1.5	11	18	9.6	1.8	0.5	0.2
13	1.5	17	16	9.1	1.8	0.4	0.2
14	1.6	17	15	8.8	1.7	0.4	0.2
15	1.9	15	13	8.4	1.6	0.3	0.2
16	1.8	13	13	8.2	1.5	0.3	0.2
17	2.2	12	13	7.3	1.3	0.3	0.2
18	3.5	12	15	7.2	1.3	0.3	0.2
19	4.9	11	14	7.1	1.2	0.3	0.2
20	4.2	7.4	12	6.7	1.2	0.3	0.2
21	3.7	7.1	13	6.3	1.0	0.3	0.3
22	2.9	8.7	15	5.8	1.0	0.3	0.3
23	2.3	13	16	5.4	0.9	0.2	0.2
24	2.6	16	14	4.9	0.8	0.2	0.2
25	4.2	13	13	4.5	0.8	0.2	0.2
26	6.1	11	14	4.2	0.8	0.2	0.3
27	7.6	11	14	4.1	0.7	0.2	0.3
28	6.8	8.9	17	3.9	0.9	0.2	0.4
29	5.9	7.1	24	3.8	1.2	0.2	0.5
30	4.4	6.8	26	3.5	0.8	0.2	0.4
31	4.6		27		0.8	0.2	
Mean	3.0	10.6	18.9	10.2	1.6	0.4	0.2
Runoff in acre-feet	186	631	1,161	609	99	26	14

TABLE A-69

DAILY MEAN DISCHARGE OF SUSAN RIVER
AT JOHNSVILLE BRIDGE

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1				51	14		
2				53	14		
3				50	17		
4				47	23		
5				34	31		
6				30	34		
7				28	21		
8				35	19		
9				31	15		
10				25	14		
11				19	15		
12				19	16		
13				23	17		
14				14	16		
15				14	14		
16				22	14		
17				21	14		
18				28	14		
19				39	28		
20				--	45		
21				--	14		
22				70	3.0		
23				51	3.0		
24				19	1.0		
25				14			
26				14			
27				14			
28				14			
29			49	14			
30			47	14			
31			51	--			
Mean			49.0	23.8	17.3		
Runoff in acre-feet			291	1,598	824		

TABLE A-70

DAILY MEAN DISCHARGE OF
WILLOW CREEK NEAR SUSANVILLE

April through September 1962
(In second-feet)

Day	April	May	June	July	August	September
1	85	18	13	11	12	11
2	86	17	13	11	12	11
3	85	17	13	10	12	11
4	82	16	13	10	12	11
5	79	14	13	10	12	11
6	74	12	13	10	13	11
7	70	12	12	10	13	11
8	65	13	12	10	14	11
9	57	15	12	10	14	11
10	50	16	12	10	14	11
11	41	16	12	10	14	11
12	41	18	12	10	13	11
13	37	17	12	10	13	11
14	37	18	12	10	13	11
15	46	18	12	11	12	11
16	53	18	12	11	12	11
17	41	18	12	11	12	11
18	30	17	12	11	11	11
19	25	17	12	10	11	11
20	24	16	11	10	11	11
21	23	17	12	10	11	12
22	22	16	12	10	11	11
23	20	16	12	10	11	12
24	19	14	11	10	11	12
25	18	15	11	10	11	12
26	18	16	11	10	11	12
27	18	18	11	10	11	12
28	19	14	11	10	11	12
29	19	12	11	10	11	12
30	18	12	11	11	11	12
31		13		12	11	
Mean	43.4	15.7	11.9	10.3	12.0	11.3
Runoff in acre-feet	2,580	964	710	633	736	672

TABLE A-71

DAILY MEAN DISCHARGE OF WILLOW CREEK
NEAR LITCHFIELD

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1	27	125	20	16	14	13	15
2	28	119	20	16	14	13	15
3	27	114	19	16	14	14	15
4	42	107	18	16	14	14	15
5	75	99	18	16	14	14	15
6	246	90	16	15	13	15	15
7	228	84	15	15	14	15	15
8	194	78	15	15	14	15	15
9	171	70	17	15	14	15	15
10	126	61	17	15	14	16	15
11	99	52	17	14	14	16	15
12	76	48	19	14	13	15	15
13	67	45	20	14	13	15	15
14	65	44	20	14	13	15	15
15	73	49	20	14	13	15	15
16	83	60	21	14	13	15	15
17	91	52	20	15	13	15	15
18	112	39	19	14	13	15	14
19	140	28	19	14	13	15	14
20	154	28	19	14	13	14	15
21	139	27	19	14	13	14	14
22	126	27	19	14	13	14	15
23	123	25	19	14	13	14	14
24	126	23	18	14	13	15	14
25	166	22	19	14	12	15	14
26	196	21	21	14	12	15	15
27	216	21	22	14	12	15	15
28	213	22	20	14	12	15	15
29	173	22	15	14	12	15	15
30	141	21	15	14	12	15	15
31	130		16		13	15	
Mean	125	54.1	18.5	14.5	13.1	14.7	14.8
Runoff in acre-feet	7,682	3,219	1,135	865	807	904	881

TABLE A-72

STORED WATER AVAILABLE FOR
REDIVERSION AT SUSANVILLE

(In second-feet)

Date	June	July
1		111
2		111
3		113
4		118
5		124
6		130
7		129
8		125
9		120
10		115
11	No	113
12		107
13	r	104
14	e	102
15	l	99
16	e	97
17	a	100
18	s	97
19	e	97
20	s	95
21		95
22	79	96
23	114	88
24	114	61
25	103	14
26	95	
27	93	No
28	91	re-
29	94	leases
30	111	
31		
Mean	99	102
Total acre-feet	1,773	5,080
Grand total		6,853 acre-feet

TABLE A-73

DAILY MEAN DISCHARGE OF JACOB-NEUHAUS DITCH
AT BARRON-MURRER PROPERTY LINE

March through September 1962
(In second-feet)

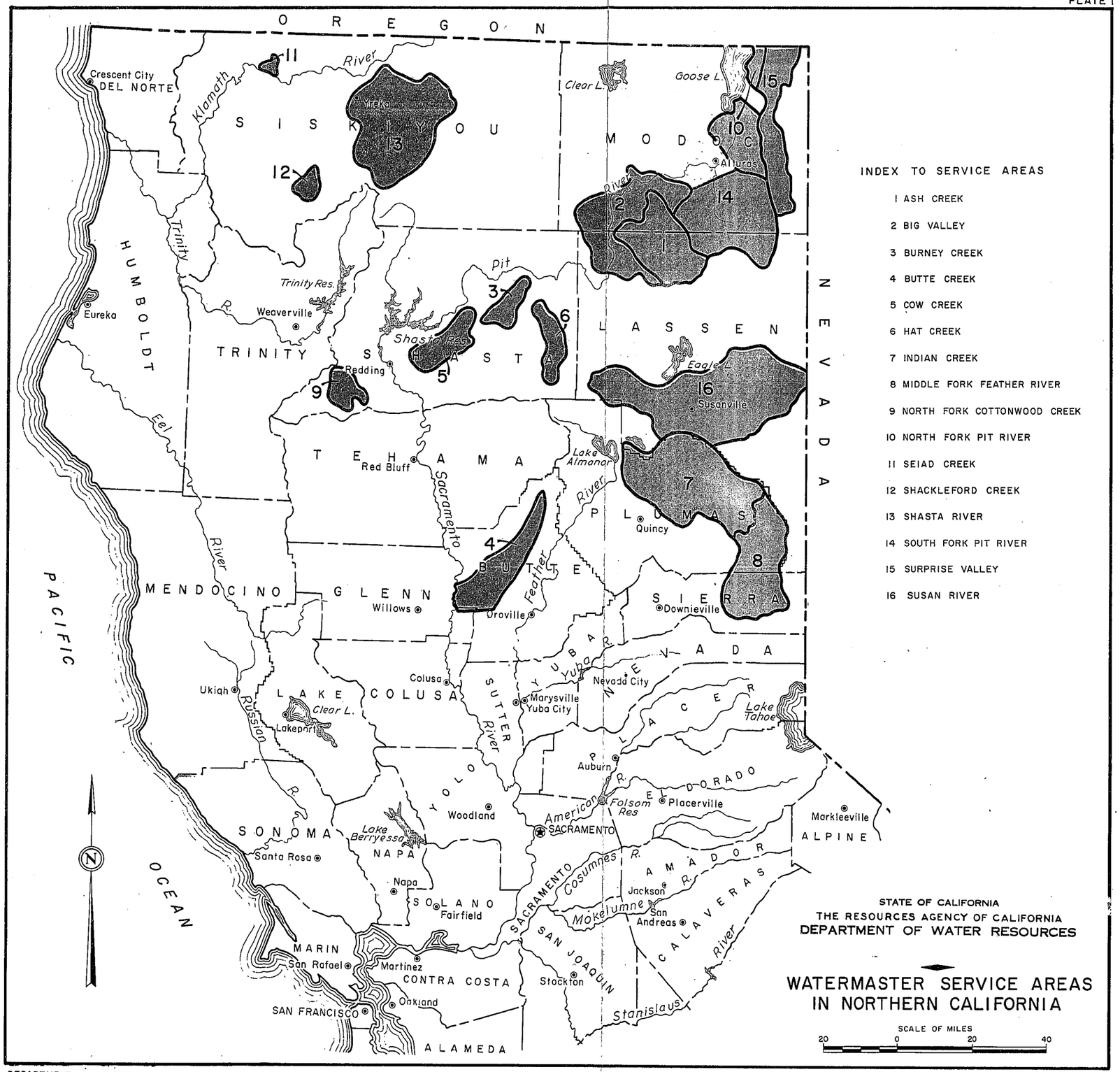
Day	March	April	May	June	July	August	September
1			2.7	1.6	2.6	1.9	1.9
2			2.6	---	2.2	1.9	2.2
3			2.1	---	1.9	1.9	2.3
4			2.5	---	1.6	1.2	2.3
5			2.6	1.6	1.6	0.9	2.3
6			2.1	1.9	1.6	0.9	2.2
7			2.2	2.6	1.6	0.9	2.1
8			2.3	2.3	1.6	2.6	2.1
9			2.5	2.3	1.4	1.9	2.1
10			2.4	2.6	1.8	1.8	2.1
11		1.0	1.9	2.7	2.3	2.7	2.1
12		1.0	2.3	2.6	2.3	2.2	2.0
13		1.9	2.3	2.7	2.3	1.8	1.9
14		2.9	2.2	2.8	2.3	1.8	2.1
15		2.7	2.2	2.7	2.2	2.1	2.2
16		---	2.3	1.1	2.2	2.2	2.2
17		2.9	2.5	2.5	1.9	2.2	2.2
18		3.1	2.4	2.4	1.8	2.3	2.2
19		3.0	2.3	2.5	1.8	2.4	2.2
20		2.9	2.2	2.3	1.8	2.5	2.2
21		2.8	2.2	2.3	1.7	1.9	
22		3.2	2.3	2.3	1.7	1.9	
23		2.7	2.3	2.3	1.6	2.3	
24		2.2	2.3	2.3	1.9	2.2	
25		1.7	1.9	2.3	2.1	2.2	
26		1.6	1.8	0.9	1.9	2.2	
27		2.1	1.9	0.0	1.6	2.2	
28		3.0	2.2	2.0	1.6	2.4	
29		2.2	2.1	2.7	1.6	2.2	
30		2.2	1.9	2.7	1.6	1.9	
31			1.6		1.9	1.4	
Mean		2.4	2.2	2.2	1.9	2.0	2.1
Runoff in acre-feet		90	137	118	116	121	86

TABLE A-74

DAILY MEAN DISCHARGE OF EAGLE LAKE CANAL
AT BARRON-MURRER PROPERTY LINE

March through September 1962
(In second-feet)

Day	March	April	May	June	July	August	September
1					7.2		
2					7.4		
3				8.5	6.2		
4				8.0	6.7		
5				8.0	7.2		
6				8.8	5.2		8.8
7				8.8	6.4		8.8
8				8.8	4.3		9.9
9				8.0	3.9		10.7
10				6.7	3.9		11.0
11				5.0	3.9		11.0
12				7.2	4.3		11.0
13				7.7	4.3		9.9
14				7.7	5.5		9.9
15				8.5	7.2		9.6
16			12.2	11.6	5.7		9.9
17			10.1	5.5	5.5		9.9
18			10.1	5.5	5.5		9.6
19			11.6	7.7	5.5		9.0
20			11.6	7.7	5.5		9.0
21			11.3	7.7			
22			9.3	5.5			
23			9.0	7.2		6.7	
24			10.0	5.5		9.3	
25				6.7		9.3	
26				7.7			
27				8.5			
28				8.0			
29				5.0			
30				6.7			
31							
Mean			9.5	6.9	5.5	8.1	10.0
Runoff in acre-feet			178	414	220	48	294



INDEX TO SERVICE AREAS

1 ASH CREEK
2 BIG VALLEY
3 BURNEY CREEK
4 BUTTE CREEK
5 COW CREEK
6 HAT CREEK
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8 MIDDLE FORK FEATHER RIVER
9 NORTH FORK COTTONWOOD CREEK
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11 SEIAD CREEK
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13 SHASTA RIVER
14 SOUTH FORK PIT RIVER
15 SURPRISE VALLEY
16 SUSAN RIVER

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

WATERMASTER SERVICE AREAS IN NORTHERN CALIFORNIA

SCALE OF MILES
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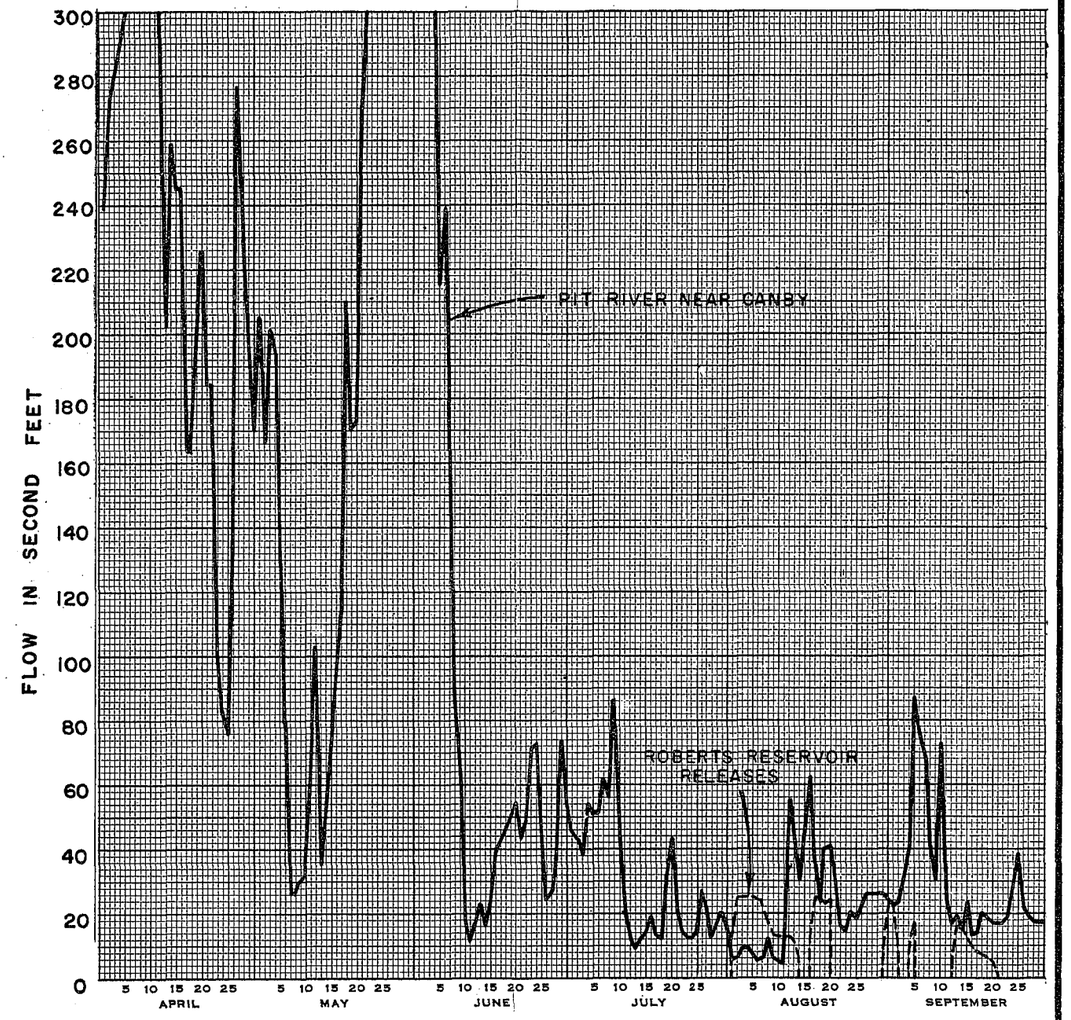
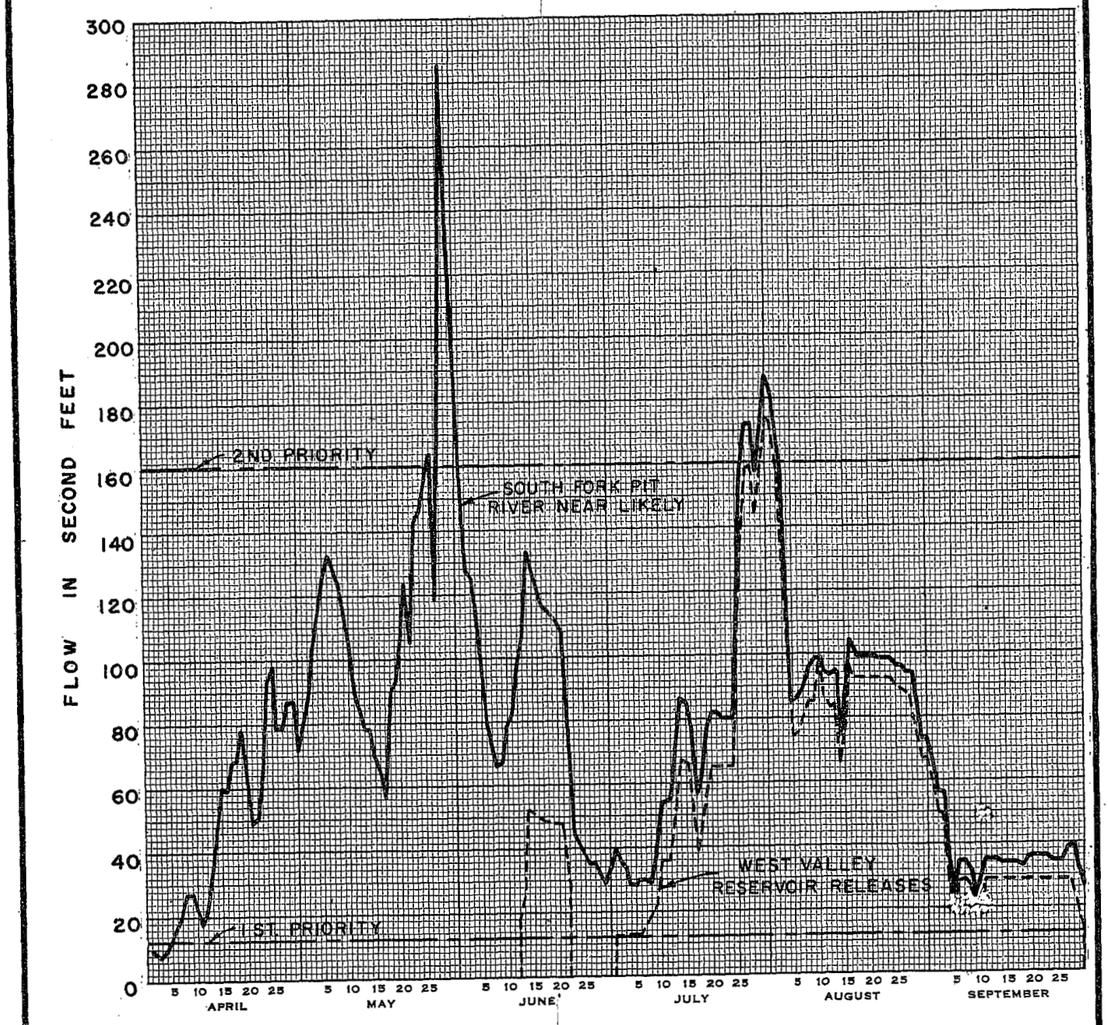
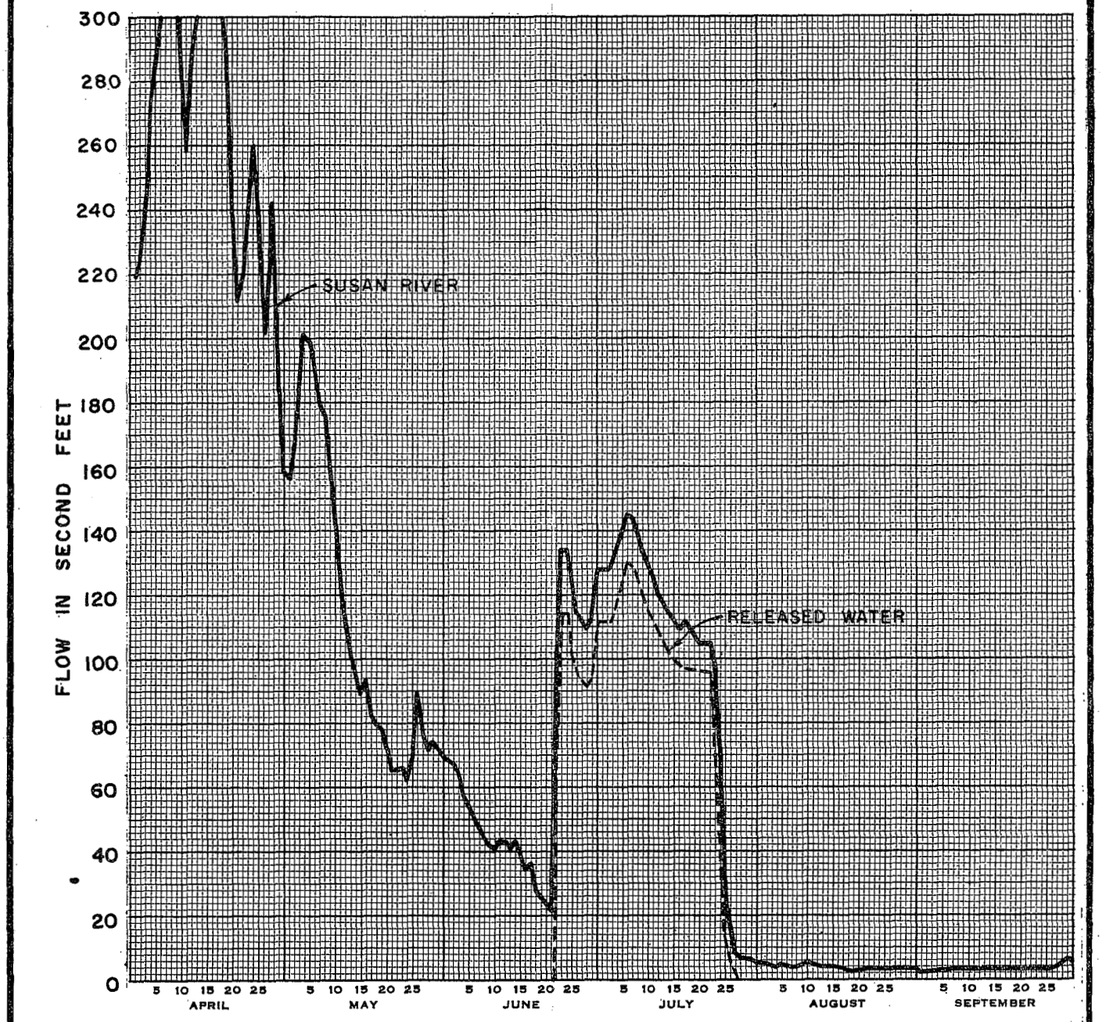
DEPARTMENT OF WATER RESOURCES 1962



HYDROGRAPHS OF PIT RIVER NEAR CANBY
AND ROBERTS RESERVOIR RELEASES
1962 SEASON



HYDROGRAPHS OF SOUTH FORK PIT RIVER NEAR LIKELY
AND WEST VALLEY RESERVOIR RELEASES
1962 SEASON



HYDROGRAPHS OF SUSAN RIVER AT SUSANVILLE
AND STORED WATER AVAILABLE FOR REDIVERSION AT SUSANVILLE
1962 SEASON